SITUATION ANALYSIS OF REPRODUCTIVE HEALTH CARE IN THE STATE OF CEARA, BRAZIL: ASSESSING THE IMPACT OF INTERVENTIONS IN 1993-1997

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I. INTRODUCTION

The Northeast: A Priority Region

Significant socioeconomic differences divide Brazil's five geographical regions, with the widest gaps between the economically strong states of the South and the less developed northeastern region. While only 6 percent of the population is without formal schooling in the South, 21 percent of the Northeast's population ages 6 and older is without formal education (BEMFAM and Macro International, 1997: 23). Infant mortality, estimated to be 48 deaths per 1,000 live births for the country as a whole, has reached a low of 25 per 1,000 in the South, but is nearly three times as high (74 per 1,000) in the Northeast (Ibid., 98). Differences in mortality seem to be at least partially explained by differential access to, or utilization of, services. In the South and Southeast, over 60 percent of women giving birth between 1991 and 1996 reported making seven or more prenatal visits, compared with only 27 percent of respondents in the Northeast. More worrisome is the fact that 26 percent of respondents in the Northeast reported that they had not received *any* prenatal care during their last pregnancy, compared to less than 7 percent of respondents in the southern states of Rio and São Paulo (Ibid., 106). Similarly, over 90 percent of all births are attended by physicians in Rio and São Paulo, compared to only 57 percent of births in the Northeast (Ibid., 108).

Although the Total Fertility Rate at the national level (2.5) is approaching replacement, regional figures range from a low of 2.1 in the state of Rio to a high of 3.1 in the Northeast (Ibid., 40). Such differences are reflected in the use of contraception: 76 percent of all women in union use a modern method of contraception in Rio, compared to 62 percent of women in the Northeast (Ibid., 56). Contraceptive alternatives are restricted throughout the country, and the vast majority of users rely on either tubal ligation (52 percent of all users) or oral contraceptives (27 percent of users).

Finally, the incidence of cervical cancer in the Northeast (36 per 100,000 women) is among the highest in the country (Ministry of Health of Brazil, 1996: 8), likely related to restricted access to gynecological services.

Due to these regional disparities, the US Agency for International Development (USAID) has made northeastern Brazil a priority region, supporting numerous

reproductive and child health interventions over the past several years. The majority of these interventions have been concentrated in the northeastern states of Ceará (population 7 million) and Bahia (population 13 million).

Service Delivery Context

The Brazilian government became an active partner in promoting women's reproductive health in 1984 with its efforts to implement the national Program for Women's Comprehensive Healthcare (PAISM). Ideally, PAISM aims to provide all women with comprehensive reproductive health care and education, from adolescence through menopause. However, recent evaluations have shown highly uneven implementation at both the state and municipal level (World Bank, 1991: 4). In the early 1990s, the Ministry of Health began institutionalizing family planning services in the public sector. Prior to government efforts to increase family planning access, couples wanting to postpone future births were largely limited to purchasing oral contraceptives or condoms in pharmacies, or using the services of private physicians or non-governmental organizations, such as the IPPF affiliate BEMFAM.

In 1992, the *Viva Mulher* program was founded by the State Health Secretariat of Ceará (SESA) with the goal of increasing access to and improving the quality of reproductive health services in the public sector. Specifically, the program was charged with increasing prenatal coverage, reducing the incidence of home deliveries in rural areas, increasing gynecological cancer screening, and increasing access to family planning.

With the support of local as well as international institutions, *Viva Mulher* has worked to improve the technical competence of reproductive health providers, while providing service delivery points (SDPs) with the equipment and consumable supplies needed to deliver family planning services and prenatal, post-partum and gynecological care. *Viva Mulher* also collaborates with other programs, such as the Program for Adolescent Health (PROSAD), to better respond to problems related to sexuality and sexually transmitted diseases (STDs). By coordinating the activities of different institutions throughout the state, *Viva Mulher* works to insure that all 184 municipalities of Ceará receive the technical and material support needed to improve women's health services. Since 1992, *Viva Mulher* activities have included:

- 228 training courses for over 4,000 health providers;
- five workshops in management and administration reaching all state-level managers and 80 percent of municipalities;
- local publication and distribution of reproductive health education materials; and
- delivery of essential family planning and gynecological equipment to 230 SDPs throughout the state (including GYN exam tables, speculums, ring forceps, and microscopes).

II. STUDY JUSTIFICATION AND OBJECTIVES

In 1993, a Situation Analysis of Reproductive Health Resources was conducted in Ceará to provide baseline information on the availability, accessibility, and quality of reproductive health services in public sector facilities throughout the state. Specifically, SDPs were evaluated in terms of:

- types of reproductive health services available;
- presence of trained providers, essential equipment, and consumable supplies;
- functioning of logistics and supervisory systems;
- adequacy of the information exchanged between providers and clients;
- technical competence of providers; and
- client satisfaction with service quality.

In order to assess the impact of *Viva Mulher* activities and other USAID-funded interventions during the 1993-97 period, a second round of Situation Analysis was carried out during the final quarter of 1997. Findings from the baseline Situation Analysis in 1993 are compared with 1997 data to analyze changes in the availability and quality of reproductive health services over time. It is hoped that the results of this comparative analysis will serve to strengthen and perhaps re-direct program efforts by indicating where interventions have been successful and where they have fallen short of their goals. As with any operations research study, the ultimate measure of success will be whether study findings inform and improve program implementation at both the state and municipal level.

III. METHODOLOGY

Sample Selection

For the 1993 Situation Analysis, SDPs were drawn from the 23 municipalities randomly selected for the 1991-92 Demographic and Health Survey *Pesquisa Sobre Saúde Familiar no Nordeste do Brasil* (BEMFAM and Macro International, 1991). Due to the large number of SDPs in the four municipalities corresponding to the Fortaleza metropolitan area, urban SDPs were included in the study only if they offered, or could potentially offer,[1] one or more ambulatory reproductive health services *and* had performed more than 1,500 medical consultations during the reference month of May 1993; or, if they *exclusively* provided reproductive health services.[2] In the 19 municipalities selected from the interior of the state, all public and subsidized SDPs that provided, or could potentially provide, ambulatory reproductive health services were surveyed, without reference to client flow. Each SDP was visited for a complete day of service delivery with the number of observations and exit interviews conducted varying with client flow, but generally not exceeding six of each. In total, 268 sites were visited, evenly distributed between the Fortaleza metropolitan area and the rural interior of the state.

In 1997, the 23 municipalities were revisited using the same sampling criteria for SDP inclusion as in 1993. A total of 274 SDPs were visited in 1997, 230 of which had been previously visited in 1993.[3] The presentation of inventory results is limited to the 230 SDPs visited in both years, while data from clinical observations and the interview modules are presented for all SDPs offering reproductive health services at either point in time.

The exclusion of new SDPs from the inventory analysis is based on the assumption that new facilities typically open with adequate stocks and equipment, conditions that will deteriorate over time in the absence of adequate logistics management. An assessment of

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[1] SDPs that could *potentially* offer reproductive health services refers to those where it would be appropriate to offer reproductive health care (e.g., general hospitals, ambulatory clinics), but where such services were not yet available.

[2] Only one SDP in the sample was an exclusive provider of reproductive health care and with a monthly client flow less than 1,500.

the impact of interventions during the 1993-1997 period is thus more precise when the new

SDPs are excluded from analysis. The quality of services actually delivered, assessed through observations and structured interviews, is not assumed to naturally decline over time. Thus, the inclusion of new SDPs in the evaluation of service quality should not bias results upward, but should accurately reflect the quality of reproductive health services available in Ceará. Table 1a displays the distribution of all SDPs visited during the Situation Analysis studies, by region and level of SDP. Table 1b displays the distribution of the 230 SDPs that were visited twice, in both 1993 and 1997 (i.e., excluding 38 facilities that closed during the study period, as well as 44 new facilities that opened after 1993). In both Fortaleza and the interior of the state, the number of SDPs classified as hospitals[4] decreased, with a corresponding increase in the number of facilities reclassified as health centers and posts.

Table 1a *Distribution of All SDPs Visited, by Region and Level of SDP*

	Fortaleza		Interior		Ceará (Total)	
	1993	**1997**	**1993**	**1997**	**1993**	**1997**
Hospitals	44	33	50	42	94	75
Health Centers	49	56	25	28	74	84
Health Posts	40	44	60	71	100	115
Total	133	133	135	141	268	274

Table 1b *Distribution of SDPs Visited in Both 1993 and 1997, by Region and Level of SDP*

	Fortaleza		Interior		Ceará (Total)	
	1993	**1997**	**1993**	**1997**	**1993**	**1997**
Hospitals	35	30	45	37	80	67
Health Centers	49	48	18	23	67	71
Health Posts	34	40	49	52	83	92
Total	118	118	112	112	230	230

[3] Of the 268 SDPs visited in 1993, 38 were no longer functioning in 1997. In addition, 44 new SDPs were operating in the selected municipalities that had not existed in 1993.

[4] In general, facilities with beds are classified as hospitals, including *maternidades*, *unidades mistas de saúde*, and *casas de parto*; gynecological clinics are classified as health centers.

Data Collection

Fieldwork was carried out by nine teams trained in the collection of inventory data, clinical observation, and structured interviews. A team of two fieldworkers, typically composed of a nurse and a social worker, visited each SDP. Fieldworkers received 10 days of training in 1993 and 15 days in 1997. Each training consisted of: an explanation of the objectives of the study and of each questionnaire item; a review of guidelines and techniques for conducting observations and interviews; role-plays with simulated clients; and practice applications of all instruments in SDPs in Fortaleza. For both studies, 18 interviewers and three field supervisors were selected. Data collection was completed in approximately six weeks. The five instruments implemented at each SDP in both 1993 and 1997 are described below.

Inventory of Human and Material Resources

This instrument is designed to measure the readiness of an SDP to provide RH (Reproductive Health) services through an inventory of all functioning equipment, contraceptive stocks, and other consumable supplies, together with a performance assessment of various subsystems including staffing, IEC activities, logistics management, supervision, and record-keeping.

Structured Interview Module for RH Providers

SDP personnel providing reproductive health services on the day the SDP was visited were interviewed to assess their training, knowledge, attitudes, and practices with respect to family planning, gynecological, and prenatal care. These interviews were usually performed by fieldworkers with medical training.

Observation Guide for Interaction between RH Clients and Service Providers

A nine page observation guide, covering family planning, gynecological, and prenatal visits, was used to record the information exchanged between providers and clients and all procedures and exams performed during reproductive health consultations. Between one and six reproductive health consultations were usually observed in a day of service delivery and were completed by fieldworkers with medical training.

Exit Interview with RH Clients

This interview module is used to help assess whether essential information was effectively communicated to family planning, gynecology, and prenatal clients, and to measure client satisfaction with services received. All clients whose consultations had been observed were invited to participate in the exit interview immediately after the conclusion of the RH visit.

Interview Module for Non-Users of Reproductive Health Services

On the day the study facility was visited, clients seeking services unrelated to reproductive health, and who have not used RH services during the past 12 months, were interviewed to assess their awareness of and attitudes toward family planning, gynecological and prenatal services (if appropriate).

Table 2 presents the number of clinical observations and interviews completed for each study. The larger number of observations and exit interviews in 1997 reflects increased client flow in the study SDPs.

Table 2 *Number of Observations and Interviews Completed during 1993 and 1997 Situation Analyses*

	Observations of RH Consultations		Provider Interviews		Exit Interviews with RH Clients		Interviews with Non-RH Clients	
	1993	1997	1993	1997	1993	1997	1993	1997
Fortaleza	432	682	109	117	432	676	285	505
Interior	199	407	59	62	199	405	194	437
Total	631	1087	168	179	631	1081	479	942

IV. RESULTS

Availability of Reproductive Health Services

SDP managers were asked about the availability of several types of reproductive health services at their facility. The proportion of SDPs that reported offering family planning, gynecological services, prenatal care, or STD services at least one half-day per week is presented in Table 3.[5]

[5] All p values are based on the *McNemar Test for Significance of Change* unless noted otherwise.

Table 3 *Percentage of SDPs Offering Reproductive Health Services, 1993-97*

	Fortaleza N=118								Interior N=112								Ceará N=230							
	H		C		P		TOTAL		H		C		P		TOTAL		H		C		P		TOTAL	
	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97
FP	43	70	39	67	41	60	41	65**	20	27	61	65	31	15	31	30	30	46	45	66	35	35	36	48**
GYN	77	87	88	90	71	63	80	80	51	54	56	65	27	25	41	43	63	69	79	82	45	41	61	62
Prenatal Care	89	90	92	92	100	78	93	86	76	73	72	91	53	71	66	76	81	81	87	92	72	74	80	81
STD Services	17	30	22	42	6	5	16	26*	9	16	33	35	4	6	11	15	13	22	25	39	5	5	14	21*

**p <.01; *p <.05; H=Hospital, C=Center, P=Post; GYN=Gynecology

While little change was evident in the availability of gynecological and prenatal care, family planning and STD services were more widely available in 1997 than they had been in 1993 (with increases of 33 and 50 percent respectively). With regard to family planning, nearly all of the increase was concentrated among SDPs in Fortaleza where the number of hospitals, centers and health posts offering services increased by 63, 72, and 46 percent, respectively. In the interior, there were small increases in the number of hospitals and centers offering FP services, while the proportion of health posts offering FP decreased by 50 percent. Among facilities offering family planning, the median frequency of service availability was 2.5 days per week in both 1993 and 1997.[6]

Urban-rural discrepancies could reflect the fact that SDPs in Fortaleza were better prepared to offer services in 1993 and could thus concentrate greater efforts on service expansion during the study period. In the interior, in contrast, conditions existing in 1993 required that greater attention be given to service consolidation.

The percentage of all SDPs reportedly offering contraceptives to clients in 1997 is displayed in Table 4.[7] SDP managers were not asked about specific methods offered at their

[6] The percentage of facilities offering RH services at least half time (2.5 days per week) is presented in Appendix Table A.1.

[7] Data in Table 4 are based on managers' reports about the range of methods offered at their facilities. They do not necessarily imply the availability of contraceptive stocks or SDP readiness to deliver methods, which are presented in subsequent sections.

Table 4 *Percentage of All SDPs Reporting Delivery of Contraceptive Methods, 1997**

	Fortaleza N=110				Interior N=112				Ceará N=223			
	H	**C**	**P**	**All Levels**	**H**	**C**	**P**	**All Levels**	**H**	**C**	**P**	**All Levels**
Natural Methods:												
Calendar method or Billings	71	89	58	**74**	49	74	37	**48**	58	84	46	**61**
Lactational Amenorrhea	75	84	66	**76**	51	74	48	**55**	61	81	56	**65**
Barrier Methods:												
Condoms	57	75	47	**61**	8	48	2	**14**	29	66	22	**38**
Spermicides	36	23	8	**21**	0	30	0	**7**	15	25	4	**14**
Condoms & Spermicides	36	23	8	**21**	0	22	0	**5**	15	22	4	**13**
Diaphragms	21	19	3	**14**	0	26	0	**6**	9	21	1	**10**
All Other Modern Methods:												
Pills	68	75	61	**68**	17	73	12	**26**	39	74	33	**48**
Injectables	14	45	5	**23**	0	4	0	**1**	6	31	2	**12**
IUDs	46	46	5	**32**	14	35	2	**13**	28	42	3	**23**
Female Sterilization	29	2	3	**9**	34	0	0	**11**	31	2	1	**10**
Vasectomy	11	2	0	**4**	11	9	0	**6**	11	5	0	**5**
Emergency Contraception ("Morning After Pill")	11	2	0	**4**	0	5	0	**1**	5	3	0	**2**

*Data not available for 1993

facilities in 1993, so it is not possible to analyze change during the study period.

Oral contraceptives, the most widely used method in Brazil after tubal ligation, were offered in almost half of all SDPs surveyed, with large differences separating Fortaleza and the interior. Nearly three quarters of all health *centers* reported offering oral contraceptives in both Fortaleza and the interior. However, less than one-fifth of hospitals and health posts in the interior reported that oral contraceptives were offered, compared with over 60 percent of similar SDPs in Fortaleza. Differences are even greater with respect to injectables: 45 percent of centers in Fortaleza reported offering the method, compared to only 4 percent of centers in the interior, where no hospitals or posts reported that injectables were available. Nearly half of hospitals and centers in Fortaleza reported offering IUDs, compared to 35 percent of centers and 14 percent of hospitals in the interior.

Condoms were the second most widely offered method, following oral contraceptives. Although few inputs are required to offer the method, four times as many SDPs in Fortaleza reported offering condoms than in the interior, where fewer than 10 percent of hospitals or posts reported offering the method to clients. Few SDPs reported offering spermicides, from a high of 21 percent of SDPs in Fortaleza to 7 percent of SDPs in the interior. In general, barrier methods are not widely offered and are considerably less available in the interior. Finally, a majority of SDPs in both regions reported offering counseling on natural methods such as periodic abstinence and lactational amenorrhea.

There was no significant change in the proportion of all SDPs offering gynecological services between 1993 and 1997 (just over 60 percent of SDPs at both points in time) (Table 3). However, the proportion of hospitals offering gynecological services in Fortaleza increased from 77 to 87 percent, offsetting a decrease among urban posts, and the proportion of centers offering services in the interior increased from 56 to 65 percent. The large gap between service availability in Fortaleza and the interior remained unchanged in 1997 (80 and 43 percent availability, respectively), and the proportion of SDPs offering gynecological services at least half-time decreased slightly (from 36 percent in 1993 to 31 percent in 1997) (see Table A.1).

Prenatal care, the most widely available RH service in 1993, remained in that position in 1997. Over 80 percent of all hospitals and health centers and just over 70 percent of all posts reported offering prenatal services in 1997, with important gains made among centers and posts in the interior (with increases of 28 and 36 percent respectively). However, the proportion of SDPs offering prenatal care at least half time decreased by 20 percent between 1993 and 1997, largely due a sharp decline in regular service availability in the interior (see Table A.1).

Finally, the proportion of SDPs offering STD services rose by nearly 60 percent during the reference period (from 13 to 21 percent) with a statistically significant increase in Fortaleza (Table 3). While few posts in either region offer STD services, over one-third of centers in both regions were offering services in 1997, as were 30 percent of hospitals in Fortaleza. However, there is clearly a need for intensified efforts to increase access to STD services, currently available in far less than a third of all facilities.

IEC Materials

Efforts to increase the accessibility of RH services depend on the SDP's promotion activities, particularly when services are new to the facility as is often the case with family planning and STD services. An SDP's ability to effectively promote services is, in turn, affected by the availability of relevant IEC materials. The proportion of SDPs with stocks of pamphlets or a flipchart covering specific reproductive health themes is displayed in Table 5.

Table 5 *Percentage of SDPs with IEC Materials*

	Fortaleza N=118		Interior N=112		Ceará N=230	
	1993	**1997**	**1993**	**1997**	**1993**	**1997**
Family Planning	40	61	27	35	34	48**
Cervical/ Breast Cancer Prevention	36	46	19	24	27	35*
Prenatal Care	34	49	19	40	27	45**
STDs/AIDS	39	55	25	33	32	44**

** p<. 01; * p<. 05
Note: IEC Materials = Flipchart and/or pamphlets in stock at time of survey;

The percentage of SDPs with IEC materials increased significantly for each of the four areas evaluated, with the largest increase (73 percent) in materials covering prenatal care. Although SDPs in both the Fortaleza metropolitan area and the interior improved their stock of IEC materials, the magnitude of such gains varied sharply by region and type of material. The percentage of SDPs with IEC materials on family planning increased by 53 percent in Fortaleza compared to a 30 percent gain in the interior. In contrast, the proportion of SDPs with prenatal materials more than doubled in the interior (climbing from 19 to 40 percent), while increasing by 44 percent in Fortaleza. In Ceará as a whole, nearly half of all SDPs now have IEC materials on family planning, prenatal care, and STDs/AIDS, while pamphlets or flipcharts covering the importance of Pap smears or how to perform self-breast exams are available in just over a third of SDPs. It should be noted that increased availability of IEC materials in the interior is of particular importance given that there are fewer alternative sources of information in rural areas.

The percentage of SDPs offering a specific RH service *and* with the relevant IEC materials in stock increased significantly for all four areas of reproductive health. The largest increases are evident with regard to family planning and STDs/AIDS, with gains of 80 and 88 percent respectively. With the exception of prenatal care, RH services and related IEC materials are available in approximately twice as many SDPs in Fortaleza as in the interior of the state.

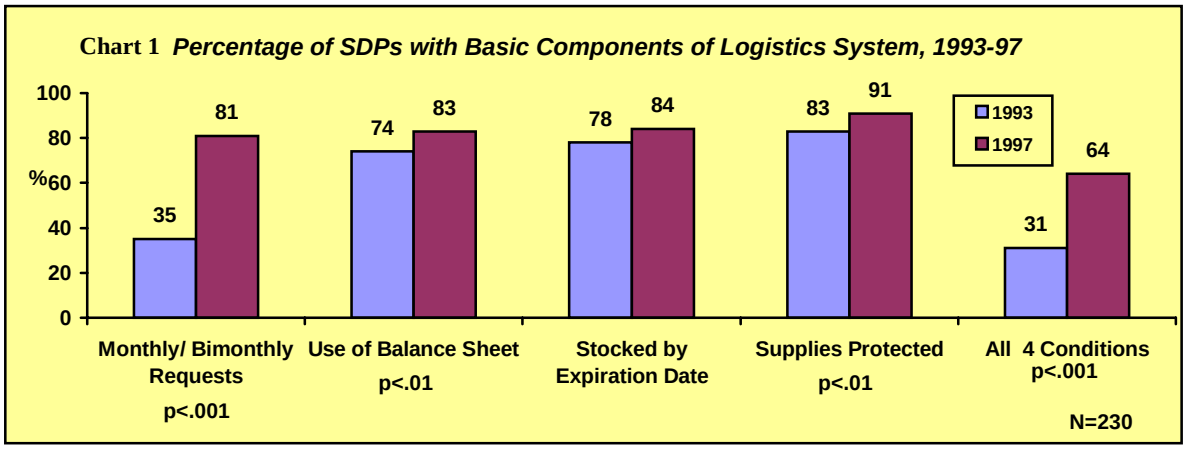
Table 6 *Percent of All SDPs Offering RH Services and with Relevant IEC Materials in Stock*

	Fortaleza N=118		**Interior N=112**		**Ceará N=230**	
	1993	**1997**	**1993**	**1997**	**1993**	**1997**
Family Planning	24	55***	19	20	21	38***
Gynecology + Cancer Prevention Materials	33	42	9	21**	21	32**
Prenatal Care	34	47*	18	38***	26	42***
STDs/AIDS	9	20*	7	11	8	15*

*** p<.001, ** p<.01, *p<.05
Note: Availability of RH service defined as offering service at least one half day per week.

Logistics Management

The functioning of logistics systems was analyzed in terms of both process and outcome indicators. There was improvement in process indicators between 1993 and 1997, as shown in the following chart.



Of the four process indicators presented in Chart 1, the first two relate directly to the probability of stockouts, while the second two relate to the likelihood of stock wastage. The largest improvement was registered in the percentage of SDPs reporting that consumable supplies were ordered at regular intervals (monthly or bimonthly), increasing from 35 to 81 percent of facilities during the study period. Reported use of a stock balance sheet also increased, particularly among centers and posts in the interior (see Table A.2). And in 1997, supplies were protected from moisture and direct light in over 90 percent of SDPs, up from 83 percent in 1993. The proportion of SDPs meeting all four conditions increased from less than a third in 1993 to well over half (64 percent) in 1997.

As is often the case in program evaluation, improvements in process indicators do not guarantee similar improvements in outcome indicators. The principal outcome indicator for logistics system functioning is the frequency of reported stockouts. Table 7 displays the percentage of SDPs reporting stockouts of contraceptive methods, iron supplements, tetanus toxoid, and antiseptic solution in the two months prior to the survey, in both 1993 and 1997.

Table 7 *Percentage of SDPs* Reporting Stockouts During 2 Months prior to Survey, 1993 and 1997*

	Fortaleza								Interior								Ceará							
	H		C		P		TOTAL		H		C		P		TOTAL		H		C		P		TOTAL	
	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97	93	97
Pills	29	50	53	41	43	42	43	43	67	70	36	47	67	100	57	67	44	57	47	43	55	56	49	51
Condoms	21	70	42	58	57	79	40	68	78	90	82	80	80	100	80	88	44	77	57	65	69	84	57	74
Spermicides	43	68	37	56	57	83	45	68	78	70	64	73	93	100	80	79	57	69	47	62	76	87	60	71
Diaphragms	50	79	63	56	71	87	62	72	89	80	46	67	93	88	77	76	65	79	57	60	83	87	68	73
IUDs	43	60	47	41	---	---	45	48	67	60	55	47	---	---	60	52	52	60	50	43	---	---	52	49
Injectables	---	80	---	53	---	87	---	71	---	80	---	87	---	88	---	84	---	80	---	64	---	87	---	75
Iron Pills	42	50	20	75	53	84	36	71	59	52	46	67	73	70	62	64	51	51	26	72	62	77	46	68
Tetanus Toxoid	26	23	13	10	27	3	21	11	59	48	8	19	35	22	41	29	43	36	12	13	30	13	29	20
Antiseptic Solution	NA	21	NA	21	NA	30	NA	24	NA	30	NA	35	NA	64	NA	46	NA	26	NA	26	NA	49	NA	35

--- = Not applicable; NA = Data not available

*Contraceptive stockouts were calculated for all SDPs offering family planning services (83 in 1993 and 110 in 1997). Stockouts in iron supplements and tetanus toxoid are presented for all SDPs offering prenatal care (183 in 1993 and 186 in 1997). Stockouts in antiseptic solution were calculated for all 228 SDPs with available data.

The percentage of SDPs reporting stockouts increased for nearly all commodities in both regions, with the exception of tetanus toxoid. (Except centers in the interior, all SDPs reported fewer stockouts of tetanus toxoid in 1997 than in 1993.) The largest increase in the proportion of SDPs reporting stockouts was seen with respect to iron supplements (48 percent increase), followed by condoms (30 percent increase).

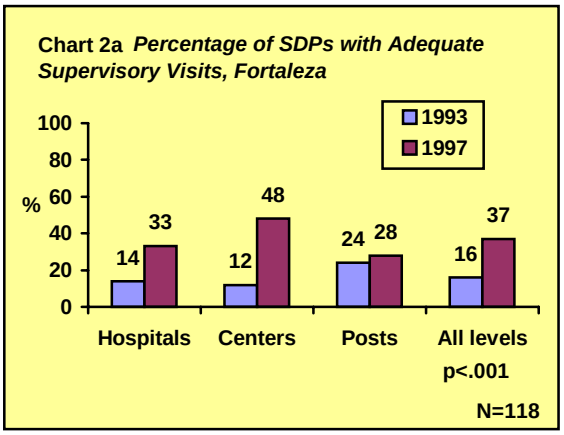
The percentage of SDPs reporting condom stockouts more than tripled among hospitals in Fortaleza, with smaller increases among urban centers and posts. In the interior, close to 90 percent of SDPs reported condom stockouts in the two months prior to the survey, up from 80 percent in 1993. Although these findings may reflect a growing demand for condoms, they demonstrate serious bottlenecks in logistics systems. The only contraceptive item not subject to *greater* stockouts in 1997 than in 1993 was the IUD, likely influenced by SDPs' limited ability to provide the method. Increased stockouts, combined with evidence of improved logistics processes at the SDP level, suggest that logistics bottlenecks may be concentrated at the central level.

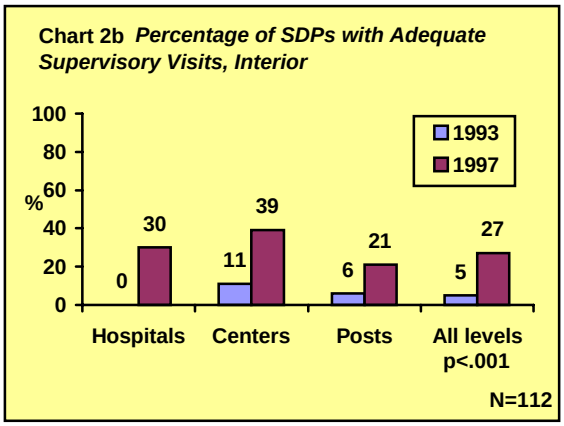
SDP Record-Keeping and Supervisory Systems

Significant improvements were made in record-keeping between 1993 and 1997. In Fortaleza, the proportion of SDPs maintaining records for family planning and gynecology doubled, and the percentage maintaining organized records for purposes of client follow-up and quality control increased from 34 percent in 1993 to 82 percent in 1997 (see Table A.3). In the interior, the proportion of SDPs maintaining records for reproductive health clients increased from 58 to 70 percent, and the percentage of SDPs using their records for client follow-up and quality assurance increased from 14 to 68 percent. For the state as a whole, three out of four SDPs were maintaining RH records for the purposes of follow-up and quality assurance in 1997.

Two criteria were used to evaluate the adequacy of supervision: 1) the frequency of visits by supervisors, and 2) the types of activities performed during supervisory visits. Overall, the percentage of SDPs reporting regular supervisory visits remained unchanged during the study period (38 percent), with an increase in the number of rural posts reporting regular visits (from 19 to 27 percent) partially offsetting a sharp drop in the proportion of urban posts reporting regular visits (from 79 to 40 percent) (see Table A.4).

A supervisory visit was considered minimally adequate if at least three of the following five activities were performed: observation of service delivery; questions asked about problems in SDP functioning; suggestions made to resolve problems; clinic records examined; and praise given for improvements. Charts 2a and 2b display the percentage of all SDPs receiving regular supervisory visits of adequate content, by level of SDP and region.





Improvements in supervision occurred in both regions, but were more dramatic in the interior. While the number of SDPs with adequate supervision was three times higher in Fortaleza than the interior in 1993, this gap decreased to less than 30 percent by 1997. Yet this difference was principally due to the improved content of supervisory visits when they occurred, rather than to a growing number of SDPs receiving regular supervision. For Ceará as a whole, only a third of SDPs received regular supervision of adequate content in 1997.

Service Readiness and Quality of Care:

Family Planning, Gynecology, and Prenatal Services

Data from the inventory module were used to evaluate the readiness (or potential) of SDPs to provide reproductive health services in terms of personnel, medical equipment, and consumable supplies. Observations were used to assess the quality of care currently available, in terms of the information exchange between providers and clients, and providers' technical competence. Service readiness and quality of care are presented by type of RH service: family planning, gynecology, and prenatal care.

A1. Family Planning Service Readiness

While the proportion of facilities that report offering a service to their clientele is an important variable for measuring change over time, the true availability of a service depends on several additional supply-side factors. With respect to family planning services, the availability of contraceptive stocks is of primary importance and is often the most limiting factor in settings where programs are relatively new or during periods of service expansion. Second, a trained provider must be present to screen potential users for contraindications, provide information regarding method usage and likely side effects, and distribute supplies. Certain types of medical equipment are also needed, such as speculums, ring forceps and tenaculums for IUD insertions, or stethoscopes and blood pressure gauges for following users of hormonal methods. And finally, additional consumable supplies, such as antiseptic solution and gauze, are required for the safe delivery of some methods. The following table presents lists of essential items for to the delivery of six methods. The lists of required items should be considered minimum preparation, meaning that if any item is missing, the SDP is not prepared to safely deliver

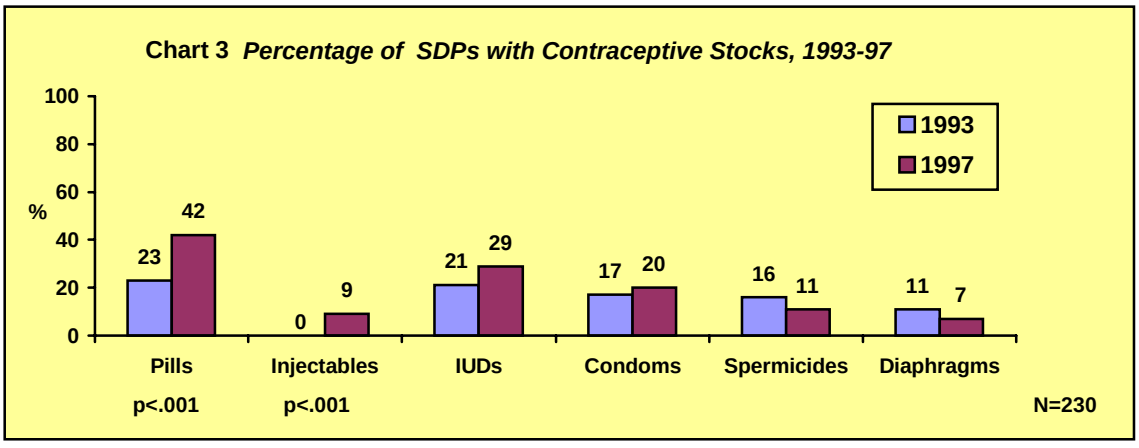
the method in question. The availability of essential items is reviewed below for all 230 SDPs visited in both 1993 and 1997.

Table 8 *Minimum Preparation to Deliver Contraceptive Methods*

	Condoms/ Spermicides	Pills	Injectables	Diaphragm	IUD*
Personnel	MD, nurse, or auxiliary nurse	MD or nurse	MD or nurse	Gynecologist or Obstetrician	MD or nurse
Equipment	None	Stethoscope, BP gauge, adult scale	None	GYN exam table, speculum, sterilization equipment	GYN exam table, speculum, ring forceps, tenaculum, scissors, sterilization equipment
Consumable Supplies	Method stock	Method stock	Method stock, alcohol, cotton	Method stock, gloves	Method stock, gloves, antiseptic solution, gauze

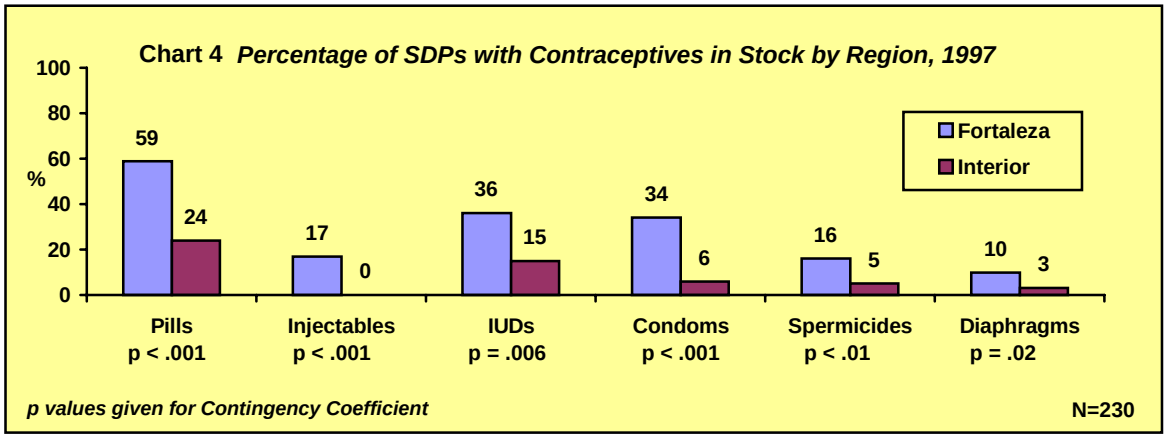
*Preparation to deliver IUDs is presented for hospitals and centers only.

An evaluation of SDPs by availability of contraceptive stocks produced mixed results. The proportion of SDPs with stocks of oral contraceptives nearly doubled, from 23 percent of SDPs in 1993 to 42 percent in 1997. And following the Brazilian Ministry of Health's approval of Depo-Provera in 1996, injectables became available for the first time during the study period, stocked in nine percent of all SDPs in 1997. However, there was no statistically significant change in the availability of any other contraceptive



method.

As displayed in Chart 4, there were still large differences in method availability separating Fortaleza and the interior in 1997.



Because change between 1993 and 1997 was not homogeneous by either region or level of SDP, it is important for program mangers to look at stock availability in disaggregate form (see Table A.5). For instance, while the percentage of SDPs with oral contraceptive stocks grew by 83 percent between 1993 and 1997, increases were more than four times greater in Fortaleza than in the interior. In fact, the availability of oral contraceptives increased *only* among centers in the interior (68 percent increase), with availability decreasing among posts (6 percent decline) and remaining stagnant among rural hospitals.

With respect to condoms, availability increased only among urban centers. Small decreases in condom stocks occurred among posts in both regions, while availability in hospitals remained unchanged (30 percent in Fortaleza and 3 percent in the interior). IUD stocks increased from 18 to 40 percent of centers in Fortaleza, with a statistically insignificant increase among urban hospitals (from 26 to 30 percent). In the interior, IUD stocks were available in only 3 percent of hospitals in 1997, down from 7 percent in 1993. Just over one third of centers had IUD stocks in 1997, with no significant change over the study period. Finally, stocks of injectables were found only in Fortaleza and concentrated primarily among health centers (31 percent).

For Ceará as a whole, the proportion of SDPs with all appropriate[8] methods in stock decreased from 6 percent in 1993 to 3 percent in 1997, reflecting declines in the availability of barrier methods.

The availability of an appropriate provider was not an important factor limiting the delivery of any method (see Table A.6), except the diaphragm for which a gynecologist or obstetrician is needed.[9] While most SDPs in Fortaleza had an Ob/Gyn (obstetrician and/or gynecologist) on staff in 1997 (77 percent of hospitals and 94 percent of centers), less than half of hospitals and centers in the interior had an Ob/Gyn available (see Table A.7).

With regard to medical equipment, 80 percent or more of SDPs (with the exception of rural health posts) had stethoscopes, blood pressure gauges, adult scales, and sterilization equipment in 1997, with little change during the study period (see Table A.7). The availability of GYN exam tables remained at 80 percent of all SDPs in 1997, although available in only half of posts in the interior. The percentage of rural health posts with speculums remained at a low of approximately 30 percent during the study period, contrasting with a sharp increase in availability among posts in Fortaleza (from 41 to 60 percent). Only half of rural health posts had alcohol or antiseptic solution in stock in 1997, compared with 78 percent of urban posts.

Little improvement was evident with respect to instruments needed to perform IUD insertions. The proportion of hospitals and centers with ring forceps remained unchanged, available in 80 percent of such facilities in Fortaleza and 70 percent in the interior. Tenaculums were unavailable in nearly two-thirds of rural centers and one third of hospitals and urban centers in 1997. Approximately one-third of health centers did not have scissors in 1997.

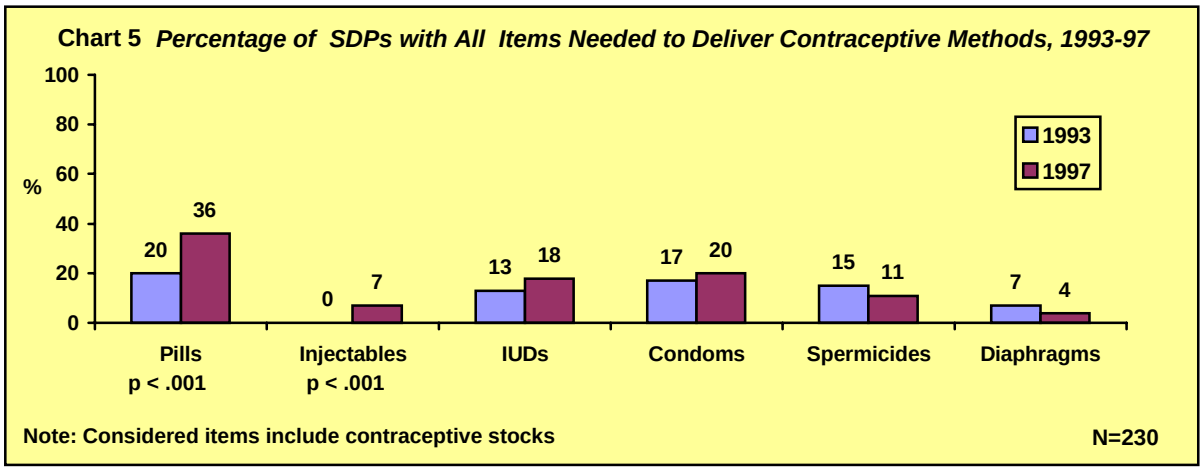
Overall, while some gains have been made in terms of equipment and consumable supplies, health posts in the interior of the state still lack basic items essential to the delivery of reproductive health care. It is also clear that few SDPs in either region can

[8] All appropriate methods for hospitals and centers are: pills, condoms, spermicides, diaphragms, and IUDs. For health posts, the list of appropriate methods is limited to pills, condoms, spermicides, and diaphragms. Injectables were excluded from this calculation given that they had been available for only a short time prior to the study.

[9] Although MOH regulations do not require that a diaphragm be fitted by a gynecologist, they are the only providers who have been trained to offer the method.

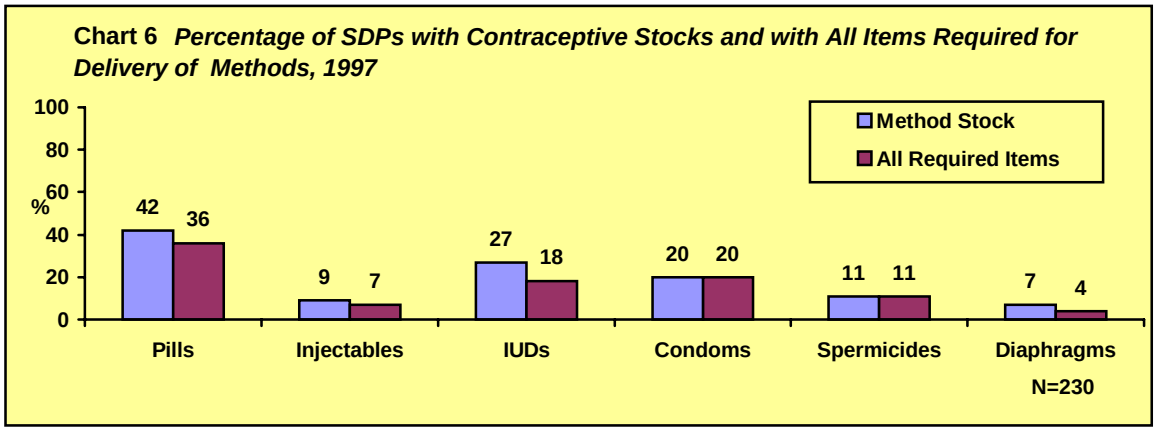
offer IUDs to family planning clients, as most hospitals and health centers lack the equipment needed to perform an insertion (see Table A.7).

Bringing together contraceptive stocks with the other items required for the delivery of a method (see Table 8) produces a more accurate picture of method availability than a consideration of contraceptive stocks alone.



The percentage of SDPs adequately prepared to deliver oral contraceptives and injectables increased sharply, while the real availability of the IUD, condoms, and spermicides showed no significant change during the study period. Decreased availability of the diaphragm was influenced both by a drop in method stocks and the absence of personnel trained in fitting diaphragms.

Chart 6 compares the percentage of SDPs with contraceptive stocks against the percentage having all required items available in 1997. The greatest difference between



method availability and SDP readiness to deliver the method is seen with respect to the diaphragm (requiring a specialized provider, speculum and exam table) and the IUD, the most demanding method in terms of medical equipment and consumable supplies. Consequently, the true availability of the diaphragm in 1997 decreases by 43 percent when all items needed for its delivery are considered, while the availability of the IUD declines by a third.[10]

Very few SDPs were prepared to deliver all appropriate methods in either 1993 or 1997 (4 and 2 percent respectively), with the decline due mainly to decreased availability of barrier methods.

To assess current levels of family planning activity and the adequacy of contraceptive stocks, service statistics were collected on the number of new and continuing family planning clients attended and supplies distributed during the three months prior to the survey. Although service statistics were available from only half of all SDPs offering family planning (61 of 110), they provide some indication of client flow and method distribution.[11]

[10] See Table A.8 for a break down by level of SDP and region.

[11] If it is assumed that SDPs maintaining service statistics are higher functioning facilities than those where statistics are not available, figures in Table 8 are likely to be somewhat inflated.

Table 9 *Mean Number of Contraceptives in Stock & Distributed per Month among SDPs Offering Family Planning, 1997*

	Hospitals		Centers		Posts		All Levels	
	Avg. # in Stock	Avg. # Distrib.	Avg. # in Stock	Avg. # Distrib.	Avg. # In Stock	Avg. # Distrib.	Avg. # in Stock	Avg. # Distrib.
	N=31	N=15	N=46	N=33	N=32	N=13	N=109	N=61
Pills	181	65	269	124	106	10	196	90
Condoms	131	67	231	456	62	14	153	273
Spermicides	5	0	34	5	1	0	16	3
Diaphragms	2	0	1	0	0	0	1	0
IUDs	11	1	8	1	------	------	7	1
Injectables	2	0	8	0	1	0	4	0

--- = Non-applicable

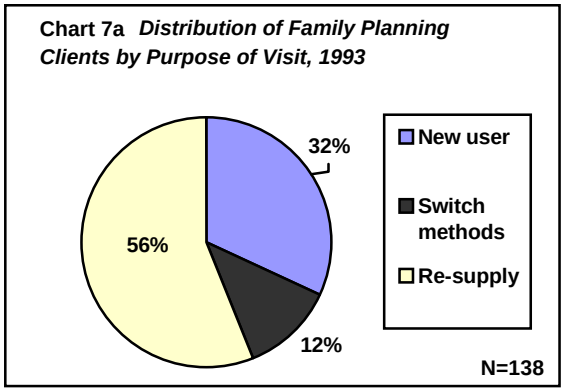
A somewhat remarkable finding is that the mean number of condoms at the time of the survey was only 56 percent of the mean quantity distributed, according to service statistics, indicating a severe shortfall in supplies. For all other methods, available stocks exceeded distribution by two to seven-fold.

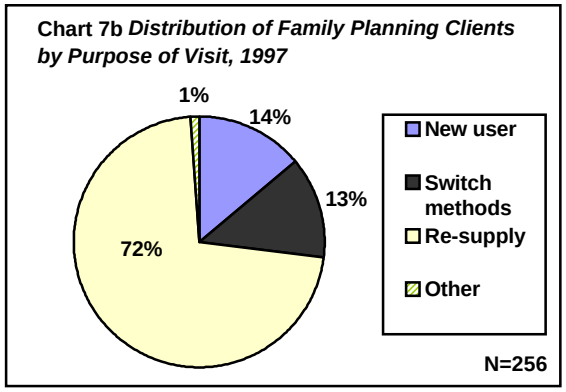
Figures in Table 9 clearly suggest that health centers are the primary distributors of contraceptive methods, supplying an average of 124 pill users, approximately 50 users of condoms or spermicide, and one new IUD user per month. It appears that hospitals play a far more restricted role in family planning, supplying an average of 65 pill users, 6.7 condom users, and one IUD user per month. And finally, the health posts maintaining service statistics serve a monthly average of 10 oral contraceptive users and 1.4 condom users. Differences between regions are large, with SDPs in Fortaleza supplying 54 percent more pill users and 32 percent more condom users per facility than SDPs in the interior (not shown).

A.2 Information Exchange between Family Planning Providers and Clients

The completeness of the information exchange during a reproductive health consultation is of concern in terms of both client satisfaction and service efficacy (e.g., a contraceptive user who understands how to use her method and manage potential side effects, or a prenatal client who is well informed about nutrition and danger signs during pregnancy). The adequacy of the information exchanged between provider and client was evaluated by type of visit. For instance, a provider is not expected to take a client's medical history during a contraceptive re-supply visit, but is expected to do so during the client's first family planning visit.

The following pie charts display the distribution of family planning clients observed in 1993 and 1997 by purpose of visit.



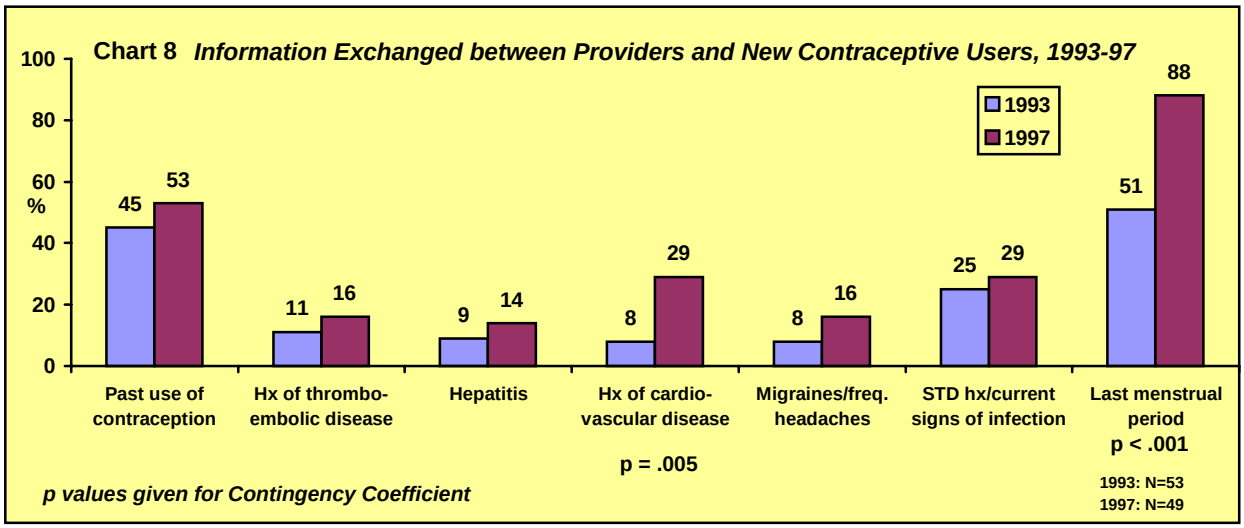


While the proportion of visits accounted for by users wanting to switch methods remained essentially unchanged between 1993 and 1997, the percentage of all visits for re-supply purposes increased from 56 to 72 percent, with a corresponding decrease in the proportion of visits by new users.[12] It should also be noted that the number of family planning consultations observed increased by over 85 percent between 1993 and 1997 (from 138 to 256).

The information exchanged between a provider and a client seeking a new method of contraception should include: a discussion of any methods she may have used in the past; a ruling out of absolute contraindications for hormonal methods and the IUD; and a

[12] Of the 929 non-reproductive health clients interviewed, 75 percent had never used formal family planning services and 64 percent were unaware that such services were available. These findings underscore the importance of continued outreach efforts to ensure that women with an unmet need for contraception are aware of the services available.

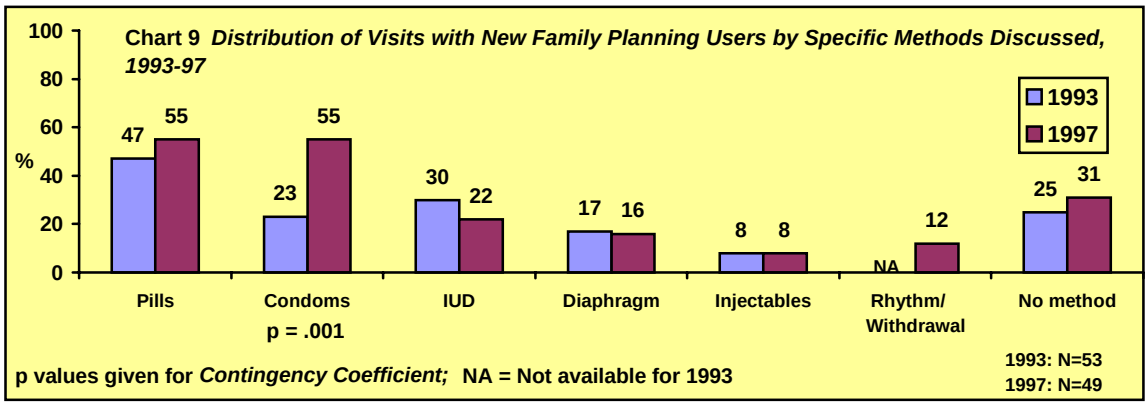
confirmation of where the client is in her menstrual cycle so that precise instructions may be given about when to initiate method use. Chart 8 displays the percentage of visits with new family planning users during which essential information was exchanged between provider and client in both 1993 and 1997.

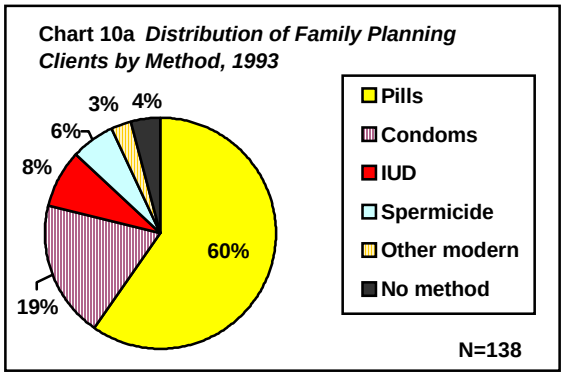


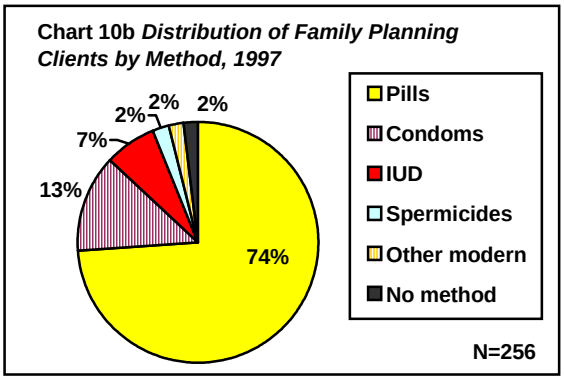
Although not all indicators showed significant change, results suggest that provider training is systematically improving the exchange of basic information between providers and new family planning users. There is clearly a need for continued improvement, particularly with regard to medical history information that could contraindicate use of hormonal methods. Family planning providers are also missing opportunities to provide additional services that the client may need. In 1997, only 38 percent of family planning providers asked clients about the date of their last Pap smear. There were not significant differences in the adequacy of the information exchange by region (not shown).

To help ensure that clients are receiving their method of choice, providers are expected to discuss contraceptive alternatives with new clients. In 1993, only 15 percent of new users were informed about three or more methods by their provider, increasing modestly to 22 percent in 1997. The proportion of visits during which at least *two* methods were discussed increased more dramatically, from 23 percent in 1993 to just over half (53 percent) in 1997.

It can be argued that new clients with previous contraceptive experience and with a preference for a specific method do not need (and may not desire) a full orientation about contraceptive alternatives. While the Situation Analysis observation guide does not allow one to discrimate between new clients who have already decided on a method prior to their consultation and those who have not, the number of methods discussed with new clients may be taken as a general indicator of provider-client communication regarding contraception. The following bar chart presents the probability of any given method being discussed with a new user, as well as the proportion of new users who were not informed about *any* specific method during their visit.







The probability of a provider discussing condoms as a contraceptive option increased significantly between 1993 and 1997. However, fewer family planning clients chose to begin (or continue) using condoms in 1997 than in 1993 (Charts 10a and 10b), apparently due to method supply problems, rather than a lack of information given to clients. In general, the variety of methods chosen by clients was more restricted in 1997,

with an increase in the proportion of clients selecting oral contraceptives. The proportion of visits during which the IUD was mentioned decreased during the study period and was mentioned in scarcely more than one-fifth of consultations with women seeking a new contraceptive method in 1997 (Chart 9). The proportion of visits during which the provider failed to discuss specific methods with an interested client also increased slightly. However, the percentage of visits during which the provider used IEC materials to enrich the discussion of contraceptive options improved, rising from 38 percent in 1993 to 47 percent in 1997 (not shown).

Once a method has been selected, all new users should receive basic information about how to use their method effectively, what side effects might be experienced, and how best to manage them if they occur. The following table presents the percentage of new users that received such information in 1993 and 1997.

Table 10 *Percentage of Visits during which Method-Specific Information Discussed with New Users*

	1993 N=53	**1997** N=53
How to use method (new users of pills, condoms, spermicides, or diaphragm)	55	55
Possible side effects (new users of pills, injectables, or IUD)	38	9
Management of side effects (new users of pills, injectables, or IUD)	41	9
Possibility of changing method if dissatisfied (new users of pills, injectables, or IUD)	NA	9
Where to receive re-supplies (new users of pills, injectables, condoms, or spermicides)	NA	36

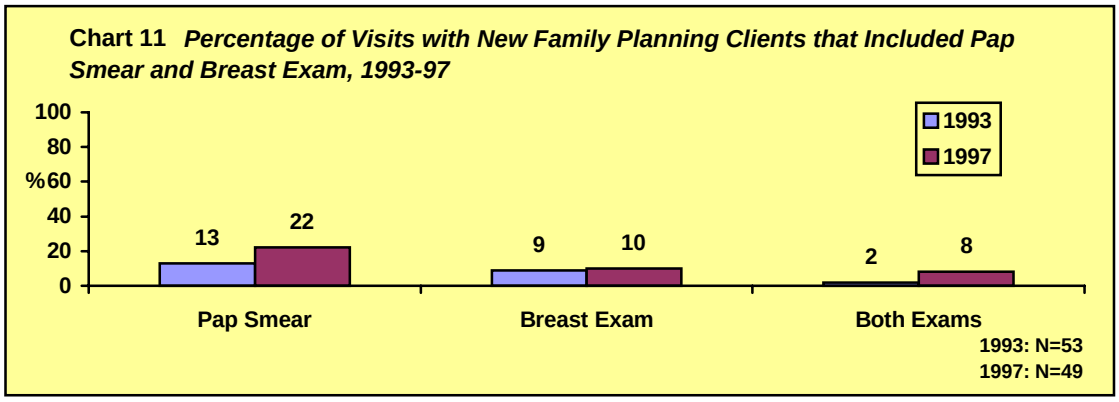
NA=Information not available for 1993

Observations of visits with new contraceptive users suggest that few clients receive the basic information they need to use their method correctly and that the situation has gotten worse since 1993. For returning family planning clients, providers are expected to inquire whether the user has any method-related problems. In 1993, only 27 percent of users were asked whether they had problems with their method. In 1997, that figure rose to 63 percent, showing significant improvement during the study period.

Finally, family planning clients should receive the method they have selected from the provider before leaving the SDP. [13] In 1993, 21 percent of clients left the SDP without a method, compared to only 8 percent of clients in 1997, indicating substantial progress during the past four years.

A.3 Technical Competence of Family Planning Providers

In addition to an adequate exchange of information between providers and their clients, the quality of services received is dependent upon whether indicated exams and procedures are performed by the provider. Family planning consultations do not routinely require the completion of exams. However, given the recognized need to expand coverage of gynecological cancer screening, it is hoped that Pap smears and breast exams will be offered to new family planning clients. The percentage of initial family planning visits during which the provider performed a breast exam and performed or referred the client for a Pap smear is presented as an indication of reproductive health service integration.



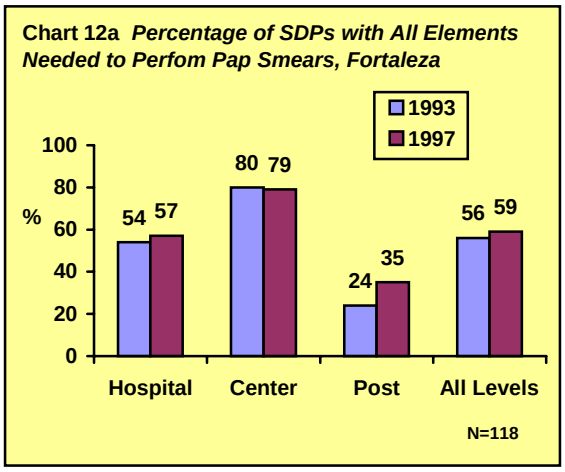
Although the proportion of visits with new users that included a Pap smear increased, the change was not statistically significant, and less than 10 percent of new clients received a Pap smear and breast exam in 1997.

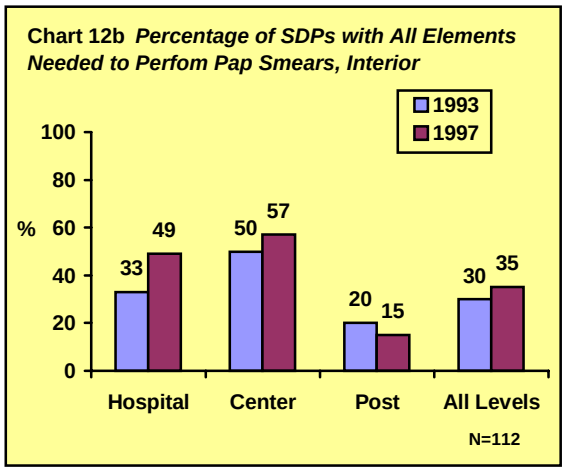
13 The IUD and injectables have been excluded from consideration as additional information would be

B.1 Readiness to Provide Gynecological Care

An evaluation of facilities' readiness to provide basic gynecological services, including Pap smears and the diagnosis of reproductive tract infections (RTIs), is presented for the 230 SDPs visited during both Situation Analysis studies.

An SDP's readiness to provide Pap smears depends on the availability of the following eight items: a trained provider (doctor or nurse), GYN exam table, speculum, lamp or hand-held light, wooden ayres spatulas (for specimen collection), slides, gloves,





and equipment or supplies for sterilizing instruments. The following graphs present the percentage of SDPs which had all eight items on hand in 1993 and 1997, by level of SDP and region.

Urban posts and rural hospitals registered important gains in overall preparation to offer Pap smears (increases of 48 and 46 percent respectively). All other SDPs showed little change during the study period. For Ceará as a whole, the proportion of SDPs prepared to perform Pap smears remained virtually unchanged (44 percent in 1993 and 47 percent in 1997), with higher levels of preparation found in Fortaleza than the interior (see Table A.9).

SDP readiness to offer basic STD screening, or curative gynecological care, was assessed according to the availability of the above items needed to perform a Pap smear, plus ring forceps, acetic acid, and a microscope for examination of cervical and vaginal discharge. The proportion of SDPs with all 11 items declined from 20 to 15 percent

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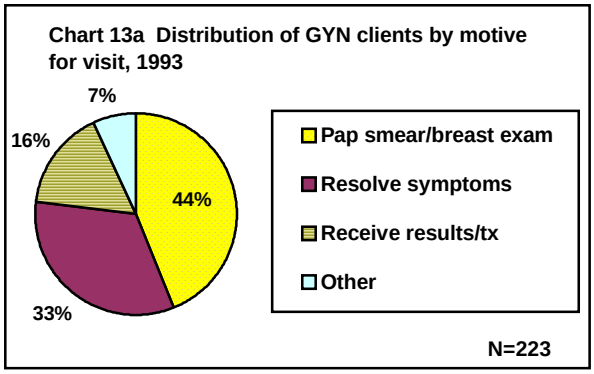
needed to evaluate whether they could have been appropriately provided during the consultation.

between 1993 and 1997 (see Table A.9), although the availability of some items did improve. The proportion of urban posts with ring forceps increased from 41 percent in 1993 to 58 percent in 1997, and the proportion of hospitals and urban posts with acetic acid in stock increased to 66 and 58 percent, respectively. However, no health post had all items required to actually offer diagnostic services and the proportion of hospitals with all items available declined to 22 percent. The least available item in both years was a microscope, stocked in less than one quarter of SDPs in 1997.

B.2 Information Exchange between GYN Providers and Clients

In both 1993 and 1997, the principal motive for gynecological visits was preventive (Pap smears and/or breast exams), followed by visits to resolve symptoms of RTIs. However, an increase in the proportion of all visits for preventive reasons (from 44 to 58 percent) suggests that the importance of regular Pap smears and breast exams may be better promoted than in the past.[14]



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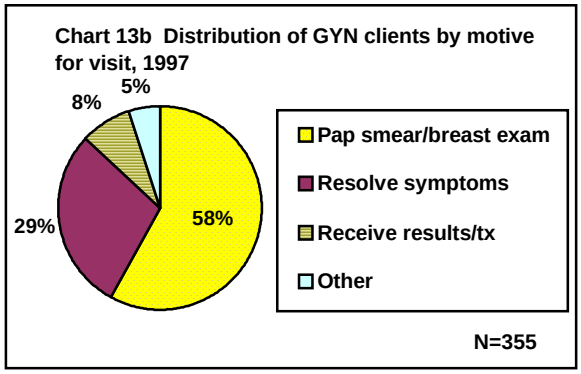

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Whether a gynecological visit is for preventive or curative services, the following information should be obtained by the provider: 1) date of last menstrual period; 2) current signs of infection; and 3) date of the client's last Pap smear. Excluding those clients returning for test results or to receive treatment during a follow-up visit, the following table presents the percentage of gynecological consultations during which basic information was exchanged.

[14] Of the 929 non-reproductive health clients interviewed, 24 percent had never had a Pap smear, indicating that additional promotion of preventive services is still needed.

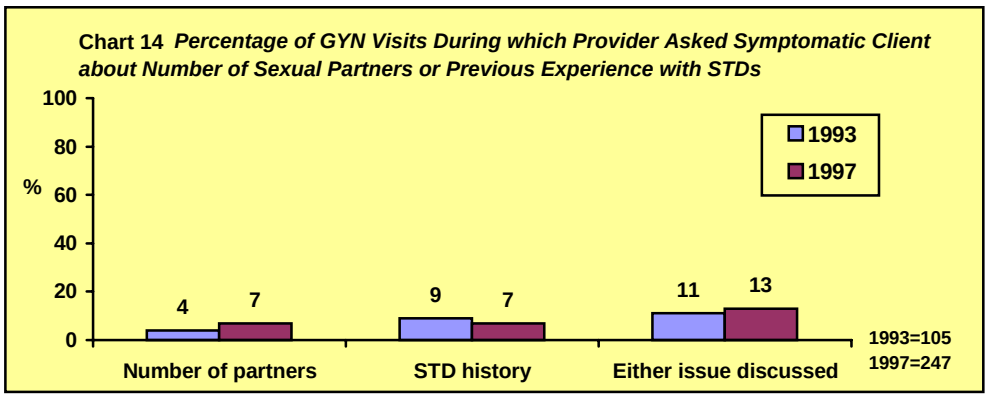
Table 11 *Distribution of GYN Visits by Information Exchanged between Provider and Client*

	1993 N=182	**1997** N=306
Provider asked (or client spontaneously mentioned) current RTI symptoms/STD history	62	43***
Date of last menstrual period verified	59	64
Discussion of contraceptive needs/current use	50	55
All three items discussed	24	24
Date of last Pap smear verified	NA	46
All four items discussed	NA	13

Contingency Coefficient, ***p < .001; NA=Information not available

There was no significant improvement in the quality of information exchange between gynecological providers and clients during the study period. Small increases in the number of providers who verified the date of the client's last menstrual period and discussed contraceptive needs were offset by a significant drop in the number of visits that included a discussion of current symptoms of an RTI and/or a confirmation of the client's experience with STDs. In both years, less than one quarter of visits included a discussion of all three items. Results suggest the need for additional provider training, with a particular focus on doctors: in 1997, 31 percent of nurses discussed all *four* items with their clients (including date of last Pap smear), compared with only 7 percent of doctors and 5 percent of auxiliary nurses (not shown).

When a client reports RTI symptoms, the provider is expected to ask the client



about her previous experience with RTIs and her number of sexual partners to help assess whether her current infection is a STD. Very few providers were asking symptomatic clients these questions in either 1993 or 1997.

In 1997, two items regarding the contraceptive status of GYN clients were added to the observation module to help measure the level of service integration. Of the 221 GYN visits with clients who were not using a contraceptive method, the provider recommended a contraceptive method only 8 percent of the time. Likewise, of the 118 visits with contraceptive users, the provider asked the client whether she was satisfied with her method less than a third of the time.

B.3 Technical Competence of Gynecological Providers

The technical competence of gynecological providers was assessed through three indicators. First, the percentage of all visits that included a Pap smear and breast exam is presented as a proxy for the thoroughness of the GYN consultation. Second, the quality of curative services is indicated by the percentage of visits with symptomatic[15] clients during which a speculum exam was performed, including a visual examination of the cervix using acetic acid or iodine (Schiller test), or a microscopic examination of discharge (wet mount). And third, the percentage of visits during which a pelvic exam was performed is presented for clients with complaints of pelvic pain.

Table 12 *Percentage of GYN Visits during which Appropriate Procedures Performed, 1993-97*

	Pap Smear (1)		Breast Exam (2)		Both Pap & Breast Exam (1 & 2)		Speculum Exam (3)		Visual Eval. of Cervix (4)		Microscopy (5)		3 **and**: 4 **or** 5		Pelvic Exam (6)	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
GYN clients	55	80***	51	68***	37	63***	-----	----	-----	----	-----	----	---	----	----	---
Symptomatic GYN Clients	----	----	----	----	----	----	63	64	49	62*	3	6	46	51	31	44

Contingency Coefficient, ***p < .001; *p < .05

Note: GYN clients include only those presenting for initial services, excluding clients returning for results or treatment; percentage of visits including pelvic exam calculated for clients with pelvic pain only.

[15] Symptomatic clients are those with complaints of unusual discharge and/or pelvic pain.

The percentage of gynecology clients receiving both a Pap smear and a breast exam increased by nearly 70 percent. However, only modest progress was observed in providers' abilities to manage curative gynecological care. While there was a significant increase in the percentage of consultations with symptomatic clients that included a visual examination of the cervix (using acetic acid or iodine), there is a clear need to increase the use of microscopy, performed in only 6 percent of consultations with symptomatic clients in 1997. The proportion of clients with complaints with pelvic pain that received a pelvic exam did not show a statistically significant increase, remaining below 50 percent in 1997.

FOUR PAGES MISSING DUE TO CORRUPT DISK

behavior in Fortaleza and the interior was remarkable (Chart 17b), with providers in the interior appearing to give considerably more attention to the comfort and feelings of their clients than counterparts in the capital. These regional differences may reflect the impact of RH training courses conducted by *Viva Mulher* in the interior of the state, which included a module on providers' attitudes toward and treatment of female clients. Large differences were also evident by type of provider, with nurses performing better than doctors during all three types of RH visits observed (not shown).

Provider Attitudes and Practices

While the evaluation of providers' technical competence and interpersonal skills was based on observations of RH visits, the attitudes and practices of providers are worth considering as additional determinants of service availability and quality. Data presented below are based on individual, structured interviews with providers attending RH clients on the day their facility was visited.

D1. Family Planning

Nearly all family planning providers mentioned that they would find it difficult to recommend certain methods of contraception to clients. Approximately one third of providers reported that they would find it difficult to recommend natural methods of family planning due to their "low effectiveness" and/or because they were "difficult to use". Sixteen percent said they would find it difficult to recommend the diaphragm for

the same reasons. Twelve percent of family planning providers said they would find it difficult to recommend tubal ligation, mainly due to its "harmful side effects" (mentioned by 7 of 12). And 10 percent of family planning providers reported they would find it difficult to recommend spermicides, again due to "low effectiveness" and/or because the method was "difficult to use". In contrast, few providers (less than 10 percent) reported that they would have difficulty recommending oral contraceptives, injectables, condoms, the IUD, or vasectomy.

D2. Men and Reproductive Health

Providers' attitudes toward male participation in family planning should be considered when developing strategies to promote greater male involvement in reproductive health. Fewer than half of family planning providers (46 percent) reported that contraceptive services were available for men at their facility. Of the 59 providers who reported offering STD services, 66 percent said services were offered to men, with greater availability reported in the interior of the state (78 percent) than in Fortaleza (58 percent). Only in reference to general ambulatory care did the large majority of providers (89 percent) report that men's services were available.

To assess provider attitudes toward vasectomy, family planning providers were asked a series of three questions. First, providers were asked whether they would consider tubal ligation or vasectomy to be the better method for a couple wanting a permanent form of contraception and without contra-indications to either procedure. Sixty-two percent of providers named vasectomy as the better method and an additional 23 percent stated that either form of sterilization would be equally satisfactory. Only 15 percent of providers reported that tubal ligation would be the better method, ranging from a high of 24 percent of providers in the interior to a low of 12 percent in Fortaleza. However, less than one-fourth of family planning providers reported that they recommended vasectomy on a regular basis. Vasectomy was less likely to be regularly recommended by providers in the interior (14 percent) than in Fortaleza (28 percent). Finally, providers were asked why so few men choose vasectomy. A large majority of providers (69 percent) felt that low prevalence rates were due to men's fears of impotence, while an additional 14 percent stated that it was due to a lack of information

or “ignorance”. Less than ten percent of providers felt that low prevalence rates were due to limited access to vasectomy services.

While it does not appear that providers themselves consider vasectomy to be an inferior form of permanent contraception, it is clear that family planning providers do not regularly promote the method. Further research is needed to determine to what extent providers’ presumptions that clients will not accept vasectomy are limiting service access.

Over 90 percent of providers interviewed felt that family planning appointments for couples would be useful and nearly two-thirds (64 percent) claimed that they requested clients to bring their partners with them to appointments. Thirty-two percent of family planning providers stated that they had attended one or more clients together with their partner during the past month. Nurses were significantly more likely to report having attended a female client with her partner (46 percent) than doctors (28 percent). However, a nearly universal endorsement of family planning appointments for couples did not mean that all providers view family planning as the couple’s responsibility. While the majority of providers (65 percent) stated that the couple has a shared responsibility to prevent unwanted pregnancies, nearly a third of providers reported that preventing unwanted pregnancies is primarily the woman’s responsibility. In contrast, only one provider felt that men have the greater responsibility for contraception. Nurses were more likely than doctors to respond that pregnancy prevention is a couple’s responsibility (72 and 64 percent, respectively).

A larger majority of providers reported that STD prevention is the couple’s responsibility (73 percent), with little variation by type of provider. However, there was an important difference by region: 27 percent of providers in the interior considered STD prevention to be primarily the woman’s responsibility, compared with only 6 percent of providers in Fortaleza.

An analysis of provider attitudes and practices regarding specific contraceptive methods suggests that providers may be unnecessarily restricting the range of methods available to clients. Although contraceptive supplies are clearly a limiting factor in Ceará, more than one in ten providers find it difficult to recommend the diaphragm or spermicides to clients because they believe the methods are not sufficiently effective or

are difficult to use, and only a small proportion of family planning providers regularly discuss vasectomy as a contraceptive option with interested clients. Furthermore, a significant proportion of providers continue to view family planning as a woman's responsibility, which may further limit access to and use of male methods.

D3. Cervical Cancer Prevention

Gynecology providers were asked three questions to assess their recommendations regarding cervical cancer prevention: 1) at what age should women begin having Pap smears; 2) how often should they be performed, and 3) after what age do women have an increased risk of developing cervical cancer.

In 1997, the most frequent response regarding age at first Pap smear was "when the woman becomes sexually active" (77 percent of respondents). Yet 12 percent of all respondents reported an age between 7 and 14, indicating for refresher trainings on the incidence of cervical cancer and its antecedents.

According to MOH guidelines, a woman's first two Pap smears should be performed one year apart and if both are normal, future tests should be performed every three years. Most GYN providers reported that Pap smears should be performed yearly, but more than one in four (28 percent) reported that the test should be performed every six months. This was a substantial increase from 1993 when only 19 percent of providers responded that Pap smears should be performed at least every six months.

Most providers were unable to identify when women have a greater risk of cervical cancer, although providers in the interior were better informed than their counterparts in Fortaleza. Only 36 percent of providers (31 percent in Fortaleza and 46 percent in the interior) reported that women have an increased risk of developing cervical cancer after age 35 (considered the correct response), while 44 percent of providers reported ages between adolescence and 30. The 22 providers who reported receiving GYN training during the past three years did not demonstrate higher levels of knowledge than the majority who had not received recent training.

These results indicate that effective refresher courses are needed to orient GYN providers about the management of cervical cancer prevention, both to avoid wasteful practices as well as to better target higher-risk clients.

D4. Prenatal Practices

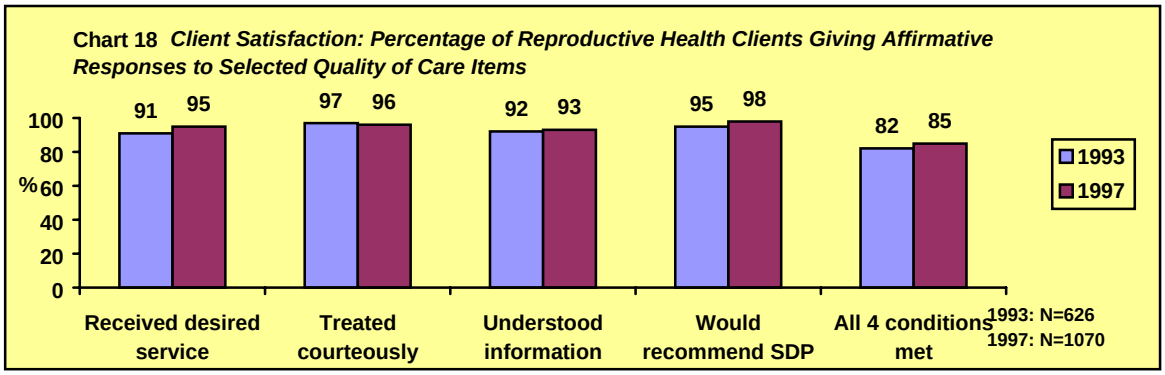
Prenatal providers were asked about their prescription of tetanus toxoid and iron supplements. As a strategy to decrease the incidence of tetanus among newborns, providers are expected to recommend tetanus vaccinations to all women of reproductive age, rather than just pregnant women. Important gains were made during the study period: in 1997, 51 percent of prenatal providers reported prescribing tetanus toxoid for all reproductive age women, up from 32 percent in 1993.

Providers were also asked whether they prescribed iron supplements for all pregnant women or just for prenatal clients suspected of having anemia. The proportion of providers prescribing iron supplements for all pregnant women (as is recommended) remained essentially unchanged (36 percent in 1993 and 39 percent in 1997), although recently trained providers were somewhat more likely to report prescribing iron supplementation for all prenatal clients (44 percent). Greater change was recorded with respect to the timing of iron supplementation. In 1993, only 39 percent of providers reported that supplementation should start during the first trimester compared with 60 percent of providers in 1997.

Client Satisfaction with Reproductive Health Services

Client satisfaction is recognized as an important component of service quality (Vera, 1993: 40; Koenig et al, 1997: 285), yet is a difficult issue to measure, particularly when relying on structured interviews conducted in close proximity to service providers (Simmons and Elias, 1994: 9). Although alternative methodologies for measuring client satisfaction, such as in-depth interviews conducted in clients' homes, are likely to produce richer data, the items included in the exit interview module that reflect various aspects of client satisfaction are presented below.

Chart 18 presents the distribution of affirmative responses to the following four items related to client satisfaction: 1) did you receive the service you desired; 2) do you feel you were treated courteously by the provider; 3) did you understand the provider's explanation of your problem or situation; and 4) would you recommend the services offered in this facility to a friend or relative.



The remarkably high proportion of clients responding affirmatively to all items in both 1993 and 1997 suggests that clients are quite satisfied with the services received.

Clients were also asked how long they had waited to be seen by the provider and whether that waiting time seemed reasonable.

Table 14 *Percent Distribution of RH Clients by Time Spent Waiting to be Attended and Percentage Reporting Waiting Time as Reasonable*

	% Distribution of Clients by Time Waited to be Seen		% of Clients who Considered Waiting Time to be Reasonable, by Time Waited	
Waiting Time	**1993**	**1997**	**1993**	**1997**
Less than 1 hour	26	40	95	83
1 to 2 hours	28	22	80	63
More than 2 hours	46	38	46	37
Total	100	100	68	59

In 1997, 38 percent of clients waited over two hours to be attended, down from 46 percent in 1993. It is interesting to note that while actual waiting time has decreased (e.g., the proportion of all RH clients waiting less than one hour increased from 26 percent in 1993 to 40 percent in 1997), client perceptions of waiting time became more negative over the study period. The proportion of all clients considering their waiting time to be

reasonable fell from 68 percent in 1993 to 59 percent in 1997. This change may reflect increasing expectations of service quality among the client population.

The percentage of clients who felt their visit lasted an appropriate amount of time remained virtually unchanged (75 and 77 percent in respective years). Based on observations of RH consultations, the median length of family planning visits decreased slightly, from 8.5 minutes in 1993 to 8 minutes in 1997, while the median time spent with gynecology and prenatal clients increased from nine to ten minutes.

Approximately one third of RH clients in both 1993 and 1997 reported that the SDP they attended was not the closest one to their home. During both studies, the most frequent reason given for seeking the services of the more distant SDP was the perception that it offered higher quality services. This finding would seem to confirm that service quality is an important issue for many RH clients. However, in 1997, the second most frequent reason for seeking services at the more distant SDP (named by 40 percent of respondents) was because the desired service was either not offered or no appointments were available at the closer facility. This response was considerably more frequent among family planning and gynecology clients than among women seeking prenatal care, reflecting the wider availability of prenatal services.

In 1997, clients were also asked if they had any problems receiving services at their SDP. Over a third (36 percent) responded that they did. Of the 387 RH clients with complaints about SDP services, 76 percent gave reasons related to the long waiting time (too few providers or not enough appointments available). Fifteen percent had complaints related to SDP supply problems (contraceptive methods or medications were not available).

Clients seeking gynecological care were the most likely to have complaints regarding SDP services (41 percent), followed by prenatal clients (35 percent) and family planning clients (29 percent). These figures may be related to findings from the observation module, where GYN providers scored far below prenatal and family planning providers in terms of interpersonal skills (see Chart 17a). There is also evidence that SDPs are less prepared to offer curative gynecological services than either prenatal care or family planning (see Tables A.8- A.10). However, a majority of clients reported that

some or all services had improved since their first visit to the SDP, with no variation by type of client.

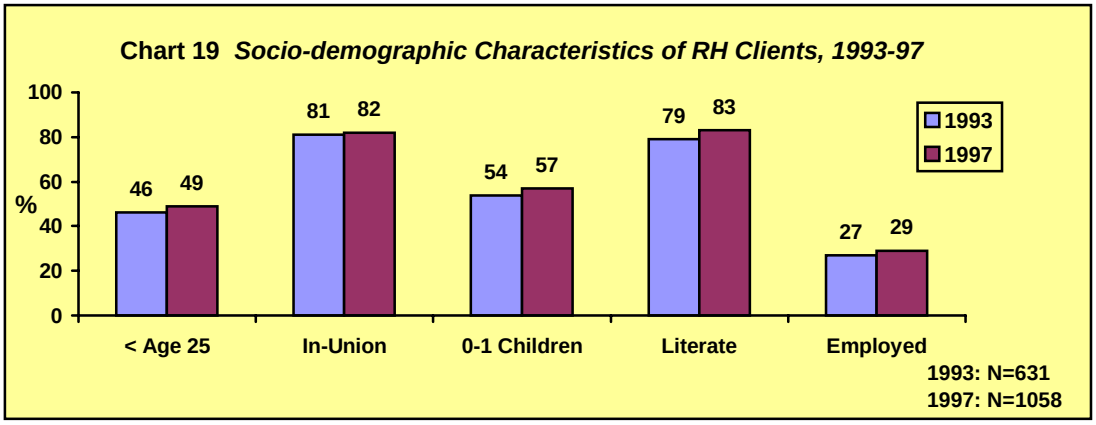
Family planning clients were also asked whether they received the method of their choice. Twenty-seven percent of respondents in 1993 and 25 percent in 1997 reported they had not. In 1993, 65 percent of women who had not received the method of their choice had wanted oral contraceptives (51 percent) or the IUD (14 percent). In 1997, the IUD and oral contraceptives were again the most frequently mentioned methods, although in reverse order (39 percent naming the IUD and 34 percent wanting oral contraceptives). Reasons for not receiving the IUD were varied: six of 24 women (25 percent) said they did not receive the method due to contraindications, and four women (17 percent) reported that the method was unavailable. The most common reason for not receiving oral contraceptives was contraindications or because the client was breastfeeding (10 of 21 women), followed by the method being unavailable (five of 21 respondents). Of the 60 family planning clients who did not receive the method of their choice, 14 (23 percent) did not receive the desired method because it was unavailable at the time of their visit. Nevertheless, nearly all clients who had *not* been given the method of their choice reported receiving the services they had desired.

In sum, the large majority of clients report being satisfied with services received, and most report that services are improving. Client satisfaction does not appear to be highly correlated with general indicators of service quality, given little variation in satisfaction across services of varying quality. However, client responses did indicate a strong demand for reduced waiting time: over 40 percent of those interviewed in 1997 felt the waiting time for services was unreasonably long. Given that close to one fifth of reproductive health clients felt their consultations were too short, better use of waiting time, such as providing informational talks in waiting areas, combined with efforts to improve client flow, may further raise client satisfaction in the future.

Characteristics of Reproductive Health Clients and Unwanted Fertility

In addition to indicating levels of client satisfaction, exit interviews with RH clients provide descriptive information on the client population that may be used to better tailor future services.

There was virtually no difference in the distribution of RH clients interviewed in 1993 and 1997: just over 40 percent were prenatal clients, approximately one-third were seeking gynecological services, and the remaining 22 percent were family planning clients. The socio-demographic characteristics of clients also showed little variation.



Approximately 80 percent of RH clients were married or in consensual union in both years. Just under half were under the age of 25, and the majority of all RH clients interviewed were either nulliparous (28 percent in both years) or had only one living child (29 percent in 1993 and 27 percent in 1997). In both years, nearly one-fifth of respondents were functionally illiterate,[16] with figures twice as high in the interior as in Fortaleza (not shown). Less than a third of clients had remunerated employment at the time of the interview.

A strong demand for fertility control was also clear during both studies: approximately 60 percent of respondents stated that they did not wish to have any additional children and less than 10 percent of all respondents (5 percent in 1993 and 7 percent in 1997) expressed a desire to become pregnant during the next 12 months.

In 1993, the proportion of family planning clients who reported having a previous unwanted pregnancy was 48 percent, decreasing to 39 percent in 1997. In 1993, 17 percent of all family planning clients interviewed reported having induced an abortion in

[16] Respondents were asked to read a simple public health message during the interview. Those who could not do so were considered functionally illiterate.

the past, compared to only nine percent of respondents in 1997.[17] An apparent improvement in clients' abilities to avoid unwanted pregnancies could reflect family planning program impact, although such change could also be due to greater utilization of private sector services.

There is also evidence of growing partner support of contraceptive use among family planning clients: in 1993, 51 percent of family clients reported that their partner would support use of any contraceptive method, compared with 65 percent of respondents in 1997. And contraceptive continuation rates may be increasing: in 1993, 45 percent of current users reported using their method for 12 months or more, compared to 52 percent of users in 1997.

V. CONCLUSIONS

During the past four years, progress has been made toward the goal of providing comprehensive reproductive health care in all public sector facilities in the state of Ceará. In particular, there has been considerable growth in the number of SDPs offering family planning services, so that nearly half of all facilities were offering contraceptive services in 1997, up from 36 percent in 1993. Improvements were also made in the availability of IEC materials, particularly with respect to prenatal care.

Results strongly suggest that the weakest link in SDP preparation, affecting all three types of RH services, is the logistics system. Family planning accessibility is restricted by a lack of contraceptives; slides and acetic acid were the least available items in the evaluation of gynecological services; and iron supplements and tetanus toxoid were the items least likely to be available with respect to prenatal program readiness.

Severe deficiencies in logistics management were evident throughout the state: stockouts of most contraceptives as well as iron supplements were reported by the majority of SDPs of all levels in both Fortaleza and the interior. While the frequency of stockouts may be partially explained by a growing demand for reproductive health

[17] Of the 21 family planning clients who reported having induced an abortion in the 1997 study, 13 (or 62 percent) stated that they had used misoprostol. The figures are consistent with a 1992-93 study conducted in Fortaleza which found that 66 percent of women hospitalized for abortion complications had used misoprostol alone or in combination with another abortifacient (Fonseca, 1996: 14).

services, greater efforts are clearly needed to render logistics systems more responsive to changes in consumption over time. The frequency of condom stockouts is also a serious obstacle to the expansion of meaningful STD services. During the last ten years, the state of Ceará has moved to decentralize public health care from the state to the municipal level. Municipalities, which are now responsible for managing their own logistics systems, should thus be targeted for additional interventions aimed at improving logistics management.

There is considerable variation between levels of program preparation by region and level of SDP, although two clear patterns are evident: facilities in Fortaleza are significantly better prepared to provide services than those in the interior (a margin that does not appear to be shrinking over time); and health *centers* in both regions are the facilities best prepared to provide reproductive health care. Given that it is more cost-effective to meet clients' primary health care needs, including family planning, gynecological, and prenatal care, at the level of health centers and posts, future program efforts should be targeted to improve the conditions of health posts, making them a more viable alternative for services.

The greatest advances recorded during the study period were related to the technical competence of providers, particularly with regard to prenatal care. Large increases were recorded in the proportion of gynecology clients receiving a Pap smear and breast exam during their appointment, and six of ten tests or procedures that should be performed during the first prenatal visit were significantly more likely to have been completed in 1997 than in 1993. There was also a sharp reduction in the proportion of family planning clients leaving SDPs without a method in hand. However, findings suggest that additional efforts are needed to improve the performance of gynecological providers as well as to increase the integration of contraceptive and gynecological services. The proportion of new family planning clients receiving a Pap smear and breast exam was still below 10 percent in 1997. There is also an urgent need to improve RTI case management. Providers rarely pose basic risk assessment questions to symptomatic clients, only half of whom receive a minimal gynecological evaluation. The growing threat of HIV infection in Brazil makes rapid improvement in RTI diagnosis and treatment a critical issue.

There is strong evidence of improving interactions between providers and their clients, although continued efforts to enhance the quality of provider-client interactions, particularly with respect to the exchange of information, will be needed for some time to come. Informing new users about what side effects they might experience and how to manage them is particularly important. Data from the *1991 Demographic and Health Survey in Northeastern Brazil* indicate that 52 percent of pill users and 73 percent of users of injectables discontinued their method within one year of initiating use, principally due to side effects (Anhel Ferraz, 1994: 11). It has also been demonstrated that new users receiving information about possible side effects are more likely to use their method for a longer period than women who receive little or no information (Cotten *et al*., 1992: 148; Bruce, 1990: 68). Thus, if family planning providers are to be effective in promoting sustained contraceptive use among interested clients, further attention must be given to the completeness of the method-specific information they receive.

In an attempt to summarize the large quantity of information made available through the two Situation Analysis studies and to help operationalize study findings into program action, ten key recommendations are presented below. It is hoped that these recommendations will help policy makers and program managers prioritize future efforts to increase the accessibility and quality of reproductive health services in Ceará. Continued discussion and interpretation of study findings at the state and municipal level will be essential to refining courses of action.

Recommendations for Action

1. Decrease gap in family planning, gynecological and STD service availability currently separating the Fortaleza metropolitan area and the rural interior of the state. Special efforts should be made to increase the availability of family planning and basic gynecological services in rural health posts.
2. Increase the quantity of IEC materials distributed to all SDPs, with priority given to SDPs in the interior. The content of IEC materials and activities should also be expanded to include men's roles in family planning and reproductive health.
3. Fill remaining gaps in basic equipment needs of SDPs. Specifically, over 40 percent of hospitals and centers do not have tenaculums, and over 20 percent do

not have ring forceps, precluding the delivery of IUD services in all facilities missing either item. Over half of all health posts do not have speculums and nearly one quarter do not have sterilization equipment, rendering them unable to offer basic gynecological services. Three-fourths of all SDPs (and roughly 60 percent of all hospitals and centers) lack microscopes, severely limiting their ability to diagnose and treat RTIs.

4. Improve SDP record-keeping of stock movements to accurately raise the quantity of stocks maintained at each SDP to the equivalent of two months of consumption, thus providing a reasonable cushion against stockouts. Facilities should routinely re-calculate their average monthly consumption (i.e., every six to eight months) to accommodate changes in demand over time.
5. Institute monthly monitoring of state and municipal logistics systems to determine principal sources and frequency of stockouts and to quantitatively track change over time. A reduction in the incidence of contraceptive stockouts should immediately result in a wider mix of contraceptive methods at SDPs offering family planning.
6. Increase the frequency of supervision for SDPs of all levels in both Fortaleza and the interior. Supervisors should give greater attention to correcting problems in logistics management.
7. Give greater emphasis to the importance of the information exchange between the provider and client during provider trainings. Specifically, providers should be trained to: routinely ask clients whether they have any questions before ending the consultation; provide specific information on possible side effects and problem management for the contraceptive method selected by new users; and perform thorough medical histories for all RH clients, especially during initial visits with prenatal clients. Future provider trainings should also include models for discussing sexual behavior with clients who may have an elevated risk for STDs.
8. Promote RH service integration by training providers to routinely offer Pap smears and breast exams to family planning clients, and to assess and meet the contraceptive needs of women seeking gynecological services. Prenatal clients

should routinely receive information on contraceptive services toward the end of their pregnancy.

9. Strengthen training of gynecological providers. Specifically, providers need refresher courses in gynecological cancer and its prevention, and basic training in the management of curative gynecological care, including STD risk assessment, microscopy and the syndromic diagnosis of RTIs where laboratory testing is not available.

10. Encourage SDPs to experiment with ways to decrease and/or make better use of client waiting time (e.g., allow clients to schedule appointments in advance, shift the number of providers available throughout the day to better respond to peak demand hours, offer informational sessions in waiting areas, increase use of auxiliary personnel for non-technical procedures).

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Table A.1 **Percentage of SDPs Offering Reproductive Health Services 2.5+ Days per Week, 1993-97**

	FORTALEZA		***INTERIOR***		***CEARÁ***	
	N=118		**N=112**		**N=230**	
	93	**97**	**93**	**97**	**93**	**97**
Family Planning	27	32	26	17	26	25
Gynecology	47	41	25	21	36	31
Prenatal Care	50	46	48	32	49	39
All 3 Services	15	22	6	6	11	15
Pre-Natal, Birth Attendance, & Post-Partum Care*	20	16	21	19	20	17

*Without reference to number of days per week

Table A.2 *Quality Of Logistics System: Percentage of SDPs with Basic Components of Logistics System, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								N=112								N=230							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
Supplies requested monthly/bimonthly	24	82	65	94	31	87	44	89	31	62	39	87	14	73	26	73***	28	71	58	92	22	79	35	81***
Supplies stocked by expiration date	83	87	88	94	94	88	88	90	76	81	89	87	53	71	68	78	79	84	88	92	70	78	78	84
Supplies protected from direct light & moisture	94	93	92	98	94	90	93	94	84	89	94	100	53	81	72	88**	89	91	93	99	70	85	83	91**
Stock balance sheet used	77	83	94	96	82	88	86	90	76	76	72	96	45	65	62	75*	76	79	88	96	60	75	74	83**
All 4 conditions	21	71	60	81	28	69	41	75	29	51	39	78	7	44	22	54***	25	60	55	80	16	55	31	64***

All p values are based on the *McNemar Test for Significance of Change* unless otherwise noted; ***p <.001; **p <.01; *p <.05

Table A.3 *Percentage of SDPs Maintaining RH Records and Use of Records for Client Follow-up or Quality Control, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								**N=112**								**N=230**							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
FP records	54	67	37	67	6	48	33	60	47	16	56	65	12	10	33	23	50	39	42	68	10	26	33	42
Gynecology records	51	83	35	83	6	63	31	76	51	43	56	65	12	17	35	36	51	61	40	78	10	37	33	57
Pre-natal records	NA	87	NA	85	NA	72	NA	81	NA	54	NA	91	NA	58	NA	63	NA	69	NA	87	NA	64	NA	73
Records maintained in useable form	86	90	96	92	88	73	91	85	56	70	94	100	45	58	57	71	69	79	96	94	63	64	74	78
Organized records used for follow-up /quality control	34	87	38	92	29	68	34	8***	20	65	28	96	4	58	14	68	26	75	35	93	15	62	24	75

***p <.001

NA=Data not available

Table A. 4 *Percentage of SDPs Receiving Regular Supervisory Visits and Visits of Adequate Quality, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								**N=112**								**N=230**							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
Regular visits	54	40	35	48	79	40	53	43	21	32	50	44	19	27	25	32	35	36	39	47	44	33	40	38
Regular visits + Adequate content	14	33	12	48	24	28	16	37	0	30	11	39	6	21	5	27	6	31	12	45	13	24	11	33

***p <.001

Note: Supervision considered adequate if at least three of five of following activities performed during regular visits: service delivery observed; questions asked about current problems in SDP functioning; suggestions made as to how problems might be resolved; examination of record-keeping system; and praise given for improvements made over time.

Table A.5 *Percentage of SDPs with Contraceptive Methods in Stock, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								**N=112**								**N=230**							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
Pills	29	60	25	67	29	48	27	59	9	11	44	74	18	12	19	24	18	33	30	69	23	27	23	42***
Condoms	31	30	27	48	24	20	27	34	2	3	22	22	6	2	7	6	15	15	25	39	13	10	17	20
Spermicides	26	23	25	19	18	8	23	16	7	0	33	22	2	2	9	5	15	10	27	20	8	4	16	11
Diaphragms	20	17	12	13	12	3	14	10	2	0	39	13	2	0	8	3	10	8	19	13	6	1	11	7
IUDs	26	30	18	40	----	----	21	36	7	3	33	35	----	----	14	15	15	15	22	38	----	----	18	27
Injectables	0	10	0	31	0	5	0	17	0	0	0	0	0	0	0	0	0	5	0	21	0	2	0	9***
All appropriate methods	11	3	6	6	12	3	9	4	2	0	11	4	0	0	3	1	6	2	8	6	5	1	6	3

***p <.001

Note: All appropriate methods for hospitals and centers refer to pills, condoms, spermicides, diaphragms, and IUDs; for health posts, appropriate
methods are pills, condoms, spermicides, and diaphragms. Injectables were excluded from this calculation due to the limited time they have
been available.
---- = Non-applicable

Table A.6 *Median Number of Physicians and Nurses by Level of SDP and Region, 1993-97*

	FORTALEZA N=115								INTERIOR N=111								CEARÁ N=226							
	H		**C**		**P**		**TOTAL**		**H**		**C**		**P**		**TOTAL**		**H**		**C**		**P**		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
Median number of MDs	7	5	4	2	1	1	**3**	**1**	1	2	2	1	1	0	**1**	**1**	2	2	3	1	1	0	**2**	**1**
Median Number of Nurses	2	2	2	2	1	1	**1**	**1**	1	1	1	1	0	1	**1**	**1**	1	1	2	2	1	1	**1**	**1**
Median number of MDs and Nurses	10	10	6	4	2	2	**5**	**3**	2	3	3	2	1	1	**1**	**2**	3	4	5	3	1	1	**2**	**2**

Note: MDs refer to obstetricians, gynecologists and general practitioners

Table A.7 *Percentage of SDPs with Equipment and Supplies Required for Delivery of Various Contraceptive Methods, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								**N=112**								**N=230**							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
Ob/Gyn	69	77	86	94	32	28	65	67	29	49	28	35	2	4	17	25	46	61	70	75	15	14	42	47
Stethoscope	89	93	92	88	94	85	92	88	89	89	100	96	88	73	90	83	89	91	94	90	90	78	91	86
BP Gauge	91	100	100	94	100	90	98	94	91	97	100	87	84	81	89	88	91	99	100	92	90	85	94	91
Adult Scale	89	100	100	94	94	88	95	93	69	95	94	96	51	71	65	84	78	97	99	94	69	78	80	89
GYN Exam Table	91	100	92	94	62	75	83	89	98	95	83	78	47	52	73	71	95	97	90	89	53	62	78	80
Speculum	83	77	90	88	41	60	74	75	69	84	72	70	29	31	52	56	75	81	85	82	34	44	63	66
Ring Forceps	77	77	92	83	41	58	73	73	69	73	72	70	27	25	51	50	73	75	87	79	33	39	62	62
Tenaculum	NA	60	NA	67	NA	20	NA	49	NA	62	NA	35	NA	12	NA	33	NA	61	NA	56	NA	15	NA	41
Scissors	91	80	71	69	82	68	81	71	100	76	72	57	71	42	83	56	96	78	72	65	76	53	82	64
Sterilization Equipment	89	100	100	94	68	80	87	91	82	95	100	83	80	75	84	83	85	97	100	90	75	77	86	87
Gloves	89	83	94	92	88	73	91	83	93	92	83	83	53	60	74	75	91	88	91	89	68	65	83	79
Cotton	NA	100	NA	94	NA	90	NA	94	NA	89	NA	91	NA	77	NA	84	NA	94	NA	93	NA	83	NA	89
Gauze	NA	100	NA	96	NA	85	NA	93	NA	89	NA	91	NA	75	NA	83	NA	94	NA	94	NA	79	NA	88
Alcohol	86	77	80	77	65	73	77	75	58	62	78	57	43	44	55	53	70	69	79	70	52	57	66	64
Antiseptic Solution	NA	93	NA	81	NA	78	NA	83	NA	78	NA	65	NA	50	NA	63	NA	85	NA	76	NA	62	NA	73

***p <.001; p < .01
NA=Data not available

Table A.8 *Percentage of SDPs with All Items Needed to Deliver Contraceptive Methods, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								**N=112**								**N=230**							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
Pills	23	57	25	58	29	35	25	50***	9	8	33	65	12	10	14	21	15	30	27	61	19	21	20	36***
Condoms	29	30	27	48	24	20	26	34	2	3	22	22	4	2	6	6	14	15	25	39	12	10	17	20
Spermicides	23	23	25	19	18	8	22	16	7	0	28	22	2	2	8	5	14	10	25	20	8	4	15	11
Diaphragms	17	3	12	6	9	3	13	4	0	0	11	13	0	0	2	3	8	2	12	9	4	1	7	4
IUDs	20	20	16	29	----	----	18	26	0	3	22	17	---	---	6	8	9	10	18	25	----	----	13	18
Injectables	0	10	0	25	0	5	0	14	0	0	0	0	0	0	0	0	0	5	0	17	0	2	0	7***
All appropriate methods	11	0	4	4	9	3	8	3	0	0	0	4	0	0	0	1	5	0	3	4	4	1	4	2

***p < .001
---- = Non-applicable

Note: All appropriate methods for hospitals and centers refer to pills, condoms, spermicides, diaphragms, and IUDs; for health posts, all appropriate
methods include pills, condoms, spermicides, and diaphragms. Injectables were excluded from this calculation due to the limited time they have
been available.

Table A.9 *SDP Readiness to Perform Pap Smears and Curative RTI Services: Percentage of SDPs with All Required Items, 1993-97*

	FORTALEZA								***INTERIOR***								***CEARÁ***							
	N=118								**N=112**								**N=230**							
	H		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**		***H***		***C***		***P***		**TOTAL**	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
MD or Nurse	91	97	98	98	97	93	96	96	87	95	94	96	78	67	84	82	89	96	97	97	86	78	90	89
Lamp/Hand Light	94	93	94	92	77	70	89	85	91	89	83	74	31	44	63	65	93	91	91	86	49	55	77	75
GYN Exam Table	91	100	92	94	62	75	83	89	98	95	83	78	47	52	73	71	95	97	90	89	53	62	78	80
Speculum	83	77	90	88	41	60	74	75	69	84	72	70	29	31	52	56	75	81	85	82	34	44	63	66
Sterilization Equipment	89	100	100	94	68	80	87	91	82	95	100	83	80	75	84	83	85	97	100	90	75	77	86	87
Gloves	89	83	94	92	88	73	91	83	93	92	83	83	53	60	74	75	91	88	91	89	68	65	83	79
Slides	77	67	84	85	50	55	72	70	40	60	67	70	20	27	36	46*	56	63	79	80	33	39	54	59
Wooden Spatulas	69	67	90	88	62	70	75	76	56	51	61	70	27	37	44	48	61	58	82	82	41	51	60	63
All 8 Items	54	57	80	79	24	35	56	59	33	49	50	57	20	15	30	35	43	52	72	72	22	24	44	47
Additional Items for Dx of RTIs:																								
Ring Forceps	77	77	92	83	41	58	73	73	69	73	72	70	27	25	51	50	73	75	87	79	33	39	62	62
Acetic Acid	71	80	84	85	32	58	65	75	42	54	61	65	22	21	37	41	55	66	78	79	27	37	51	58
Microscope	49	43	37	27	0	5	30	24	40	41	67	52	4	2	29	25	44	42	45	35	2	3	29	24
All 11 Items	43	27	29	23	0	0	25	16	20	19	44	35	0	0	15	13	30	22	33	27	0	0	20	15

*p < .05
NA=Data not available

Table A.10 *SDP Readiness to Provide Basic Pre-natal Care: Percentage of SDPs with All Required Items, 1993-97*

	FORTALEZA								*INTERIOR*								*CEARÁ*							
	N=118								N=112								N=230							
	H		*C*		*P*		TOTAL		*H*		*C*		*P*		TOTAL		*H*		*C*		*P*		TOTAL	
	93	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**	**93**	**97**
MD or Nurse	91	97	98	98	97	93	96	96	87	95	94	96	78	67	84	82	89	96	97	97	86	78	90	89
Adult Scale	89	100	100	94	94	88	95	93	69	95	94	96	51	71	65	84	78	97	99	94	69	78	80	89
BP Gauge	91	100	100	94	100	90	98	94	91	97	100	87	84	81	89	88	91	99	100	92	90	85	94	91
Stethoscope	89	93	92	88	94	85	92	88	89	89	100	96	88	73	90	83	89	91	94	90	90	78	91	86
Fetoscope	89	100	96	92	94	78	93	89	87	87	78	91	53	75	71	82	88	93	91	92	70	76	82	86
Exam table	91	100	92	94	62	75	83	89	98	95	83	78	47	52	73	71	95	97	90	89	53	62	78	80
Thermometer	86	87	90	75	88	83	88	81	87	89	89	78	76	69	82	78	86	88	90	76	81	75	85	79
Iron supplements	63	72	88	58	53	43	70	56	47	53	61	70	27	40	41	51	54	62	81	62	37	41	56	54
Tetanus toxoid	69	70	88	92	79	88	80	85	36	42	89	83	57	77	54	67	50	55	88	89	66	82	67	76
Prenatal cards	66	87	76	88	77	75	73	83	38	60	56	96	20	64	33	69	50	72	70	90	43	69	54	76* **
All 10 items	29	45	53	33	12	15	34	31	13	14	33	48	6	12	14	20***	20	28	48	38	8	13	24	25

***p < .001